FOREST MULTIPLE USE GUIDE
FOR
TONTO NATIONAL FOREST

Approved by_____ _____
Forest Supervisor Date

Forest Service Handbook, Tonto June 1974

FOREST MULTIPLE-USE GUIDE

FOREWORD

In 1905, Secretary of Agriculture Wilson established the policy that National Forests were to be administered in a manner that would perpetuate their various resources, uses, and activities and make them available to the American people. Congress recognized the soundness of this policy and the passage of the Multiple Use-Sustained Yield Act of 1960 made it law. The Act states that the National Forests are to be administered for outdoor recreations, range, timber, watershed, and wildlife and fish purposes. The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of the Act. It declared that the resources of the National Forests were to be used in combinations that best meet the needs of the American people. Congress further strengthened the multiple use concept by passage of the National Environmental Policy Act of 1969. The Act establishes a National Environmental Policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere, to stimulate health and welfare of man, and to enrich the understanding of the ecological systems and natural resources important to the Nation. Under the direction of Secretary of Agriculture, the Forest Service is the agency responsible for carrying out the intent of these and other applicable laws on National Forest System lands.

The Southwestern Region Multiple Use Area Guide reflects new Service-wide standards and requirements for the management and administration of all National Forest System lands which include the National Forests, National Grasslands, and Land Utilization Projects. It establishes broad direction and coordinating criteria for planning, development, and coordination of various resources, uses, and activities on National Forest System lands to meet public needs without reference to a specified period of time.

The Multiple Use Area Guide provided guidance to the Forest Supervisor in developing this Tonto National Multiple Use Guide which is the foundation for a Forest Land Use Plan. The specific coordinating requirements for the management zones that occur on the Tonto National Forest were developed within the framework of Regional Management direction and coordinating criteria contained in the Multiple Use Area Guide. These coordinating requirements have been reviewed and approved by the Regional Forester before becoming a part of the Tonto National Forest Multiple Use Guide as approved by the Forest Supervisor.

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The Forest Land Use Plan consists of a written and graphic section of which together constitute a complete plan. The written section consists of Part I and Part II of the plan. The multiple use base map depicting management zones and management units with map overlays constitutes the graphic section. Each Ranger District has a copy of Part I and Part II of the Forest Land Use Plan that applies to his Ranger District. These documents give overall guidance and management direction for the administration of the Ranger District.

Multiple use management does not mean the production of all resources on every acre of National Forest land. As multiple use becomes more intensive, it will be necessary to emphasize resource management on smaller units of land through the formation of management units. This next step in multiple use planning, the unit planning process, is an inventory and evaluation procedure for allocating resources and uses to specific units of land. Management units are the end product of the unit planning process.

Management units are established within management zones as identified by the District Ranger or as developed through the unit planning and public involvement process and approved by the Forest Supervisor. They are accurately delineated on the multiple use base map and precisely described in the written section of the Forest Multiple Use Plan.

Management decisions for management units are made by the Forest Supervisor and the District Ranger and recorded in the written section of the Forest Land Use Plan. Management decisions (1) allocate resource emphasis to various units of land, (2) prescribe constraints and enhancement opportunities that must be placed on uses or resources associated with the emphasized use, and (3) specify measures for coordinating complementary uses.

Certain management units have high capabilities for producing trees of a commerical value and low sensitivities to man's activities. On such areas, other factors being consider, emphasis could be given to the production of commodity wood fiber products. Under such an allocation, use of other resources would be coordinated with the achievement of a predetermined level of wood fiber production.

Unit Plans are developed through the interdisciplinary unit planning process at the Forest level. The District Ranger is involved in the development of Unit Plans. A Unit Plan allocates areas of land

to a specific resource emphasis according to the capability and sensitivity of the land to produce the resource for public need.

Unit Plans are approved by the Forest Supervisor. The results of the Unit Plans are incorporated in the Forest Land Use Plan as management units by the Forest Supervisor. The management direction contained in the Forest Land Use Plan is then carried out by the District Ranger.

The unit planning process provides information necessary for the manager to allocate land for the production of commodity products, amenity values, or a combination of both. This process determines which of man's uses on these lands can be conflicting and which can be complementary.

Unit planning will identify the resource or use that will receive emphasis and prescribe constraints and mitigation measures to reduce or eliminate conflicts. One example of management emphasis being given to an area of land is the Travel Influence Zone. Here management emphasis is on natural beauty and aesthetics; however, this does not necessarily preclude use of the other resources within the Travel Influence Zone providing such use does not detract from or damage natural beauty of aesthetic qualities of the zone.

In some instances, giving emphasis to certain resource or use on an area of land may exclude the use of one or all other resources. Some examples of land use allocations that exclude, in whole or in part, the use of other resources are municipal watersheds, certain developed recreation sites, and research natural areas.

All long-range resource and activity management plans, short-range action plans, and programs must be in accord with overall management direction and management decisions contained in the Forest Land Use Plan.

The Multiple Use Area Guide will remain in effect until January 1, 1978, at which time it will be updated to reflect current management situations and direction. Multiple use management is a dynamic process and Forest Land Use Plans will need periodic revisions to incorporate new planning data, reflect changing conditions, public needs, new information, and improved technology. Forest Land Use Plans can be revised annually with the Regional Forester's approval after public involvement and review of revised material. Effective multiple use

management on the Tonto National Forest demands that the Forest Supervisor become involved with landowners; other State and Federal land administering agencies; local, county, and State planning agencies or commissions; as well as interested individuals, groups, and organizations to review plans both for the Tonto National Forest and other ownerships and to coordinate the use of National Forest system lands to best fit into an overall land use allocation processs. Commitment and support can only come when the public and its leaders fully understand the role of the National Forests in providing their fair share of goods and services, and have had an opportunity to become involved in the unit planning process.

The Multiple Use Area Guide is an in-service document prepared to give guidance and management direction to the Forest Supervisors. The Tonto Land Use Plan gives guidance and direction to the District Rangers in managing Ranger Districts. The Multiple Use Area Guide and the Forest Land Use Plan will not be given out-service distribution except on a limited basis by the Regional Forester. They are, however, available for review by the public upon request.

The Tonto National Forest Land Use Plan is but a means to an end. The degree of management success will be measured by the results obtained on the ground. The basic concept of multiple use management is sound. Unit planning will strengthen multiple use management by placing more emphasis on the formation of management units. The Tonto National Forest Land Use Plan will aid the land managers in providing a maximum of quality products and services to meet the growing needs of people in the Southwest and the Nation and, at the same time, maintaining a healthy and attractive environment.

Approved_____
Forest Supervisor

_____
Date

TONTO NATIONAL FOREST
MULTIPLE USE GUIDE

Organization of Guide

SECTION 1 - INTRODUCTION

This section of the Guide briefly describes and highlights the total management situation for the Tonto National Forest. It includes descriptions of climate, physical characteristics, and population trends.

SECTION 2 - COORDINATING REQUIREMENTS

This section contains coordinating requirements that were developed for the Tonto National Forest in keeping with the broad Regional management direction outlined in the Southwestern Region Multiple Use Area Guide. The broad regional management direction referred to as Coordination Criteria is further integrated with the management direction contained in the Chief's "Framework for the Future". Coordinating Criteria is applicable to all Forests within the Region.

Regional management direction is further directed to smaller areas of land through the management zone concept. Each management zone occurring within the Tonto National Forest is described with Regional management emphasis restated and zone management direction restated in the form of zone coordinating requirements. Specific coordinating requirements which apply only to the management zone for which they were developed, give more specific direction for managing the resources, uses and activities of the particular management zone.

SECTION 3 - MANAGEMENT SITUATIONS

Management situations are statements describing the type, amount, and condition of major resources, uses, and activities on the Tonto National Forest in relation to their potential and/or demand or needs. The supply-demand relationship of the various resources to each other has been considered in determining management direction.

SECTION 4 - BASIC ASSUMPTIONS

This section documents the basic assumptions that support and give credibility to management direction. Basic assumptions are suppositions or conclusions reached after careful analysis of resources, uses and public needs of expected conditions in the future.

SECTION 5 - APPENDIX

Maps, and other meaningful material will be found in the appendix.

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Section 1 - Introduction

When Zane Grey wrote 'Beneath the Tonto Rim' he described a land of wide open spaces, rich in material and spiritual resources, and most unique in character. He was writing about the country below the Mogollon Rim. . . On October 3, 1905 the area was proclaimed the Tonto Forest Reserve and on July 1, 1908 was designated the Tonto National Forest by Executive Order of President Theodore Roosevelt.

The Tonto National Forest includes the Mogollon Rim areas of Payson and Pleasant Valley Ranger Districts and the precipitous mountain, water, semi-desert and desert areas of the Cave Creek, Tonto Basin and Mesa Ranger Districts. It also includes the semi-desert, mountainous and highly mineralized lands of the Globe Ranger District. These six Districts encompass over 2.9 million acres forming one of the largest National Forests within the continental United States.

A variety of climate, topography and vegetation characterizes the land mass of the Tonto. Elevations range from 1300 feet to near 8000 feet and temperatures rise to desert summer highs of 115 degrees and fall to mountain winter lows of minus 20 degrees. Precipitation is extremely erratic throughout the year with total rainfall varying as much as 400% between years.

Water is the single most important resource on National Forests of the semi-desert regions of the southwest. Setting aside the Tonto as a Forest Reserve in 1905 for protection of the watershed was recognition of this fact. The importance of water to the area was further highlighted in 1914 when Arthur C. Ringland, the first Region 3 District Forester in Albuquerque, in a letter to The Forester, Washington, D.C., wrote, "Clearly the principle importance of the Tonto is for watershed protection. . ."

On the Tonto National Forest the Salt and Verde River watersheds supply water for six vital reservoirs serving the Phoenix area. The Forest plays an important role in the production, quality control and storage of this critical water supply. The increasing importance of this management role is best appreciated when the population growth figures of the Phoenix area are projected ten years. Water that flows from the Tonto must be available to serve the needs of an ever expanding community.

Called the 'backyard of Phoenicians', the Tonto National Forest serves as an immediate retreat and recreation haven for the nearly 1 million people of the Phoenix area.

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For nine months of the year the mild climate, varied terrain and the lakes of the Salt and Verde rivers attract millions of visitors from all parts of the United States. During hot summer 'dog days' the lakes and the cool pine forests under the Mogollon Rim beckon thousands of Arizonans from the metropolitan areas of Phoenix and Tucson. These two large cities contain 78% of the state's 1.9 million people. This fertile center of Arizona has experienced phenomenal growth in population and use over the past ten years. For example Visitor Day use on the Tonto increased 187% between 1963 and 1973. By the 1980's the Phoenix area population is expected to double, bulging to 2 million people. Most of the growth will be to the north and northeast closer to the Forest boundaries. It is anticipated that Visitor Day use will increase in the same proportion. Special management plans for facilities and controls to meet current and anticipated use are needed.

The Fire season on the Tonto is longer than that of any other National Forest in the Southwest Region. It extends from early spring through late fall. Historically fires occur each month of the year because of the wide range of fuels, topography and climate. In wet years precipitation 'protects' the northern portions of the Forest from fire yet produces heavy growth of grasses and annuals in the semi-desert areas. This proliferation of huge quantities of light fuels are easily ignited in dry lighting storms or by man's carelessness. Conversely, in dry years the timbered areas to the north become critical and the dry barren desert produces little in the way of fuels for major wildfires. The fire management resources available in the Phoenix metropolitan area and on the Forest provide support for fire control efforts throughout the state and other Regions.

Although the allowable cut of Ponderosa Pine on the Tonto is small when compared with some of the other heavily forested areas in Arizona, administration of timber sales is complicated by exceptionally high visitor use and environmental considerations.. The annual allowable cut is 4.5 million board feet of saw logs and 8,500 cords of pulpwood.

Historically the range lands of the Tonto have attracted livestock owners. The mild climate and ability to graze year round caused early settlers to greatly overstock the range causing serious depletion of range forage and deterioration of the soils. Grazing is now regulated allowing about 110 permittees to graze 44,000 cattle and horses and 11,000 sheep on 106 allotments.

A great diversity of species of wildlife exists on the Tonto because of the unusual variety of vegetative types. Species range from desert

javalina and tortoise to animals found in pine and mixed conifer such as the Aberts squirrel, deer and elk. With most of the state's 221 thousand fishermen and 150 thousand hunters licensed from the Phoenix area, the Tonto is under intense hunting pressure and the lakes rivers and streams are heavily fished, year round. Although hunting and fishing receive the most publicity as a recreational sport, non-consumptive recreational use of wildlife by activities such as bird watching and animal photography exceed all other use.

In summary the Tonto National Forest is a complex land mass with extremes in climate and topography and subject to very high visitor use. It is used 365 days a year by Arizonans concerned with their environment and by ecologically conscious winter visitors from all parts of the country. Any use made of Forest resources is highly visible and subject to close scruity and knowledgeable review.

Phoenix Headquarters for the Tonto is located in the economic, governmental, cultural and population center of the State. Many conservation minded organizations, groups and individuals based in this center critically assess Forest resource management decisions and actions. Diverse opinions and sometimes self serving interests complicate the decision making process. As the Phoenix area population continues to grow and expand to the borders of the Forest, resources and facilities will approach limits of use. Difficult decisions will have to be made in setting priorities regulating this use.

This Tonto National Forest Multiple Use Guide was developed within the framework of the Regional Area Guide . . . It is the basis for Part I of the Forest Land Use Plan. In developing Unit Plans, District Rangers will follow management direction provided by this guide.

Section 2 - Coordinating Requirements

General Coordinating Requirements. The following general coordinating requirements apply to all management zones except the Special. If the requirement is applicable, appropriate action must be taken to achieve the required coordination.

1. Provide safety for Forest visitors through use of appropriate laws, closures, law enforcement, or other management techniques.

2. Emphasize public safety in planning, designing, and constructing facilities on National Forest System lands.

3. Conform to Department of Agriculture standards in the use of all pesticides and promote development of acceptable alternatives for the use of pesticides.

4. Safeguard water, people, animals, and property in connection with use of pollutants.

5. Protect administrative study plots from damage or destruction.

6. Assist the State Forester in the protection and management of State and private forest resources.

7. Restrict use of motorized equipment when the site or resource may be damaged.

8. Restore land occupied by temporary roads to near natural conditions as possible.

9. Locate project work camps, construction camps, and fire camps to minimize damage to the land and its resources, uses, and activities.

10. Manage all activities to eliminate or minimize water, air, and soil pollution.

11. Strengthen communication between Research and Tonto National Forest personnel to facilitate the unrestricted flow of information on needed research efforts and adapt research findings to improved operational practices and systems.

12. Develop cooperative relationships with universities and other public and private organizations. Include these people in Forest Service administrative studies as appropriate.

13. Weigh resource outputs from National Forest System land on the basis of long-term benefits to the public at large, not the short-term benefits to a specific industry or locality.

14. Establish demonstration areas in the management zones and units that are dedicated to the use being emphasized.

15. On a planning unit priority basis, program time for Forest personnel to prepare resource inventories, make environmental analyses and environmental statements, and develop unit plans to the extent needed to properly manage the Tonto National Forest.

16. Incorporate soil and water protection requirements in all resource and activity management plans.

17. Evaluate impacts of management actions on environment irrespective of landownership.

18. Coordinate land use planning and management programs on National Forest System lands with those on private, State, and other Federal lands.

19. Recognize the need for management decisions to protect areas of land with unique, or critical characteristics.

20. Emphasize amenity values on lands with high soil sensitivity and low capability.

21. Identify preferably through the land use planning process or other methods the highly capable lands for producing specific commodity or amenity outputs and designate as management units within the zone and develop the necessary management decisions to manage them according to their emphasized use.

22. Make Forest expertise and skills available to urban, city, county, State, and Federal planning and management groups for land use planning and allocation efforts on a reimbursable basis.

23. Utilize expertise and skills from other planning groups in Forest Service land use planning efforts.

24. Continue to participate in manpower training programs.

25. Work with all levels of Government and with industry to give consideration and assistance to disadvantaged people in Forest Service programs.

26. Encourage the use of contracting and/or use of local labor forces to accomplish forestry jobs.

27. Use management units to protect scenic views visible from major travel routes and developments.

28. Locate man-made structures, to the extent possible, to minimize silhouetting against the sky.

29. Require 100 percent clean up of all slash and debris within cleared right-of-way boundaries.

30. Recognize open space needs in land use planning on National Forest land.

31. Anticipate and plan for on-site water needs in connection with all Forest Service programs.

32. Inventory areas that have potential for increased water yield.

33. Avoid practices that lower water tables in meadows and open parks.

34. All improvements located on flood plains must comply with Executive Order 11296.

35. Monitor water quality prior to a potential water pollution activity and continue during and after it has been authorized.

36. Provide, to the extent possible, conservation pools and minimum streamflows in authorizing or developing water storage impoundments and diversion projects.

37. Recognize domestic H_2O requirements before allocation for resource use.

38. Protect livestream, riparian habitat, and natural openings from damage during the management of resources, uses and activities on the Tonto National Forest.

39. Provide for wildlife movement and migration in construction of fences, highways, water storage, water diversion and transmission projects and slash disposal.

40. Recognize indigenous wildlife habitat requirements, in all activities conducted on the Forests in which the wildlife requirements are complementary to emphasized use.

41. Design and construct channel changes and other unavoidable encroachment activities on streams and rivers to minimize damage to fisheries and other aquatic values.

42. Place entrance and escape ramps for small birds and animals in range and wildlife water developments.

43. Protect all critical areas and critical nonrenewable resources by identifying management units and making appropriate management decisions in the Forest Land Use Plan.

44. Protect archeological sites against vandalism and "pot hunting".

45. Protect all known antiquity sites from disturbance and damage until their significance can be determined.

46. Work with prospectors and miners to gain their support and understanding of the mining regulations.

47. Prepare stipulations in prospecting and mining permits requiring prospectors and miners to comply with environmental protection and restoration measures.

48. Minimize soil disturbance and provide needed stabilization measure promptly to protect disturbed areas in a manner compatable with use.

49. Prohibit management practices that will permanently reduce soil productivity.

50. Inventory the soil's capability to produce basic resources in at least three capability classes: Low, medium, and high.

51. Stockpile surface soil for resurfacing denuded areas associated with road and other similar construction activities.

52. Confine livestock use to lands with low to moderate sensitivity to grazing and moderate to high capability for producing grass, forbs, and shrubs.

53. Work towards achieving full production from lands with high capability to produce livestock forage and low sensitivity to livestock grazing.

54. Attempt to include the total ranching operations, regardless of landownership, in a permittee's grazing management plan.

55. Control numbers of existing wild, free-roaming horses and burros to keep them within the capacity of their range and compatible with other emphasized uses and activities.

56. Recognize, in the periodic review of forest landownership adjustment plans, the public benefits to be gained and the effect of the plan on land adjacent to the National Forest System land.

57. Minimize impact of surveys and markers on the landscape.

58. Protect all surveyed land corners, monuments, and witness trees from damage or destruction.

59. Retain public rights-of-way across Government lands being conveyed into private ownership.

60. Recognize and correct existing liabilities such as unsafe improvements and unusable roads on acquired lands.

61. Hold rights of-ways to minimum width to safely accomodate the structure and its future maintenance.

62. Post legal boundaries between private and National Forest System lands.

63. Place utility distribution lines underground to minimize their impact on the environment.

64. Approve only those applications for occupancy of National Forest System lands wherein occupancy serves a public need that is greater than the resultant damage, and cannot be provided for on adjacent lands.

65. Control off-road vehicle travel and camping to the extent necessary to prevent loss of soil, water pollution, and the general degradation of the environment.

66. Evaluate the total spectrum of recreation opportunities available within the framework of multiple use management.

67. Protect potential recreation sites and access thereto by management units and management decisions in the Forest Land Use Plan.

68. Limit timber harvesting under present logging methods to soils with low to moderate sensitivity and moderate to high capability for producing trees.

69. Reduce logging slash from timber harvest to a level that will protect the remaining resources.

70. Dispose of logging and construction slash prior to next field season or next flight of insects.

71. Close, drain, and revegetate all abandoned sections of trails roads and highways.

72. Avoid construction of roads across highly productive meadows, sensitive soils, and scenic lands.

73. Locate roads and trails so as to minimize impacts on meadows, parks, streams, lakes, and reservoirs.

74. Install culverts and other road drainage structures so they will not damage the resources and will not adversely effect fisheries management.

75. Locate all-purpose roads and trails, to the extent possible, to take advantage of outstanding views and scenic attractions.

76. Design and construct road drainage and bridge structures to blend with surrounding topography and geology to the fullest extent possible.

77. Avoid constructing access roads with long tangents visible from points where these roads leave major routes of travel.

78. Develop the transportation system to adequately meet management, protection, and utilization needs of the Forests.

79. Locate logging slash and debris piles to prevent scorching of adjacent trees and shrubs.

80. Minimize adverse effects of fuel hazard reduction projects and fire line location on natural beauty and recreation values.

81. Dispose of slash by burning when atmospheric and fuel conditions are such that good smoke dispersal and control of fire can be assured.

82. Permit lightning fire, to run its natural course in wildernesses according to approved policy.

83. Base fire management programs on future needs and on past history.

84. Apply the Inform and Involve program on the Tonto National Forest. Obtain public involvement by consulting with concerned public groups, organizations, and agencies prior to or during the planning process.

85. Encourage and assist environmental education programs in communities on the Tonto National Forest.

86. Recognize and prevent conditions favorable for insect and disease outbreaks.

87. Reduce timber losses from insects and disease to levels commensurate with forest resource values and protection of environmental quality.

88. Select insect and disease control methods which will cause minimum damage to related resources and will have the least impact on the environment.

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Section 2 - Coordinating Requirements

2. Management Zones

Intermediate Zone

Description. A major portion of the zone lies across the north end of the Forest, generally, just below the Mogollon Rim however, smaller areas of this occur in the Sierra Ancha - Pine Mountain - Copper Mountain country, as well as in other scattered areas, above 6,000 feet elevation. For the most part, it is characterized by narrow steep canyons, wide flat ridges, and numerous drainages, descending southwesterly from the Mogollon Rim. Soils vary from deep clay and sandy loams of high fertility through the shallower soils of limestone derivation, and on to diabase or granite soils of low productivity. Vegetative cover ranges from "fringe type" ponderosa pine through mixed conifer. The commercial timber is predominately ponderosa pine with small amounts of Douglas fir and White fir, as well as some limber pine in the deeper canyons adjacent to the Mogollon Rim. The best timber growing sites are generally in the canyon bottoms. Presently about 4 1/2 million board feet of timber is being cut annually. In addition, about 8,000 cords of pulp wood are cut for the Snowflake pulpmill. In recent years there has been an increasing demand for fuelwood.

Much of the privately held inholdings on the Forest are concentrated within this zone. Major groupings of private lands occur in and around Payson and Young. There are also many small homestead patents which often lie across natural travel and water routes. Most of these have been subdivided and are not considered desirable for acquisition.

Most of the fires occuring on the Forest occur within the Intermediate Zone. Dog hair thickets and natural accumulations of fuels on the ground provides both a history and potential for large wildfires. Generally, difficult terrain and inaccessibility to motor vehicle travel increases initial attack time.

Water production is high in this zone because of the greater amounts of precipitation which averages from 16 to 30 inches per year. In general, watershed conditions are satisfactory. Major rivers, their tributaries and storage basins are dependent on water from this zone.

Scenery and natural beauty as well as climatic relief attract many visitors during the hot summer months. Recreation use is

very heavy during the summer and again during the fall game hunts. The preferred summer camping areas are located here.

For the most part cattle are permitted year-long, throughout the zone. Management plans provide for the use of the upper units during the summer and early fall months. Generally forage production over much of the area is low except in some of the canyon bottoms natural parks and meadows which will need special consideration to protect them from damage from over-grazing. In some areas past grazing abuse has damaged riparian vegetation along stream courses and depleted wet meadows.

Good hunting exists for mule and white tailed deer, turkey, elk, bear, javalina and squirrel. Trout fishing is available in many of the streams originating under the Mogollon Rim. Several developed camp sites and many dispersed throwdown areas provide camping and picnicking to the public. Most of the Forest's summer home special use permits, along with several organized children and church camps, are located within the Intermediate Zone.

Although numerous claims and "prospects" are located throughout the zone, there are few mines of commercial importance. Much of the zone serves as a backdrop for Water and Travel Influence Zones.

General panoramic views into the zone in the middle and background are common for major travel routes. Transportation facilities, except for two major highways, are poor. Most roads are considered inadequate by today's standards and although some are being improved, many are impassable during spring thaws and heavy summer rains.

Management Emphasis. Management emphasis will be directed towards managing lands with (1) soils of high capability and low sensitivity primarily for the production of commodity products such as convertible wood products, quality water, and forage for domestic livestock and wildlife, and (2) soils of low capability and high sensitivity for the production of amenity values such as open space, stable watershed, and wildlife.

Zone Coordinating Requirements

1. Leave adequate den, mast, roosting and nesting trees and snags for birds and animals when harvesting timber.

2. Select harvest designs that blend with the landscape. Use the landscape architect and other disciplines where there are conflicts.

3. Protect regeneration areas from damage by domestic stock.

4. Recognize and minimize heavy slash concentrations, and standing snags which create complex fire stituations.

5. Lop all logging slash to within 36 inches of the ground where piling is not required.

6. Encourage prescribed burning of slash.

7. Upgrade access roads to the minimum standard necessary to remove timber efficiently and safely. Close and encourage regeneration of tree species on all non-system roads constructed and used by the operator.

8. Minimize possible disruptions to livestock and wildlife use in establishing timber plantations and regeneration areas, and in planning timber sales.

9. Reestablish timber species on areas which have reverted to brush because of fire.

10. Consider the ability of the timber site to produce another timber crop before including its volume in the allowable cut.

11. Recognize the effect timber harvesting, mistletoe control, and timber stand improvement work will have on scenic areas visible from Water and Travel Zones.

12. Minimize the impact of sheep driveways on timber regeneration.

13. When disposing of slash, except in fuel breaks, leave small unburned piles to provide cover for small game.

14. Avoid thinning in dense stands in late May and June when beetles are in flight.

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Section 2 - Coordinating Requirements

2. Management Zones

Woodland Zone

Description. The Woodland Zone on many areas of the Tonto is quite variable. It generally occupies the foothills and mesas between the Chaparral and Intermediate Zones or in some cases between the Desert and Intermediate Zones. The zone ranges in elevation from 3500 to 5500 feet. The zone is characterized by a variety of woody plants. The most prominent species is alligator juniper, often occurring in pure dense stands at higher elevations on deep soils. The zone is generally characterized by a patchy understory of browse species with alligator, Utah and one-seed juniper, emory oak, and pinyon pine the most common overstory species. Hairy and side-oats grama are the principal grass species found in the zone.

Drainages through the type often contain stands of live oaks, in some cases mixed with Ponderosa pine, and at lower elevations, hardwood species such as Cottonwood and Sycamore.

Soils are variable, in many areas being quite deep with a high productive potential. Generalization on soil types within the zone is difficult because of their variability. Poorer soils are generally associated with areas having a browse understory.

Wildlife and domestic livestock utilize forage production from the zone yearlong. Competition between livestock and wildlife exists on some areas, particularly on riparian areas within the zone.

The zone provides material for fuelwood sales and has the capability of producing Christmas trees. Indian ruins are common throughout the zone. The zone receives considerable dispersed recreation use particularly by hunters and operators of recreational vehicles.

Management Emphasis. Management emphasis will be directed towards managing lands with soils of high capability and low sensitivity primarily for the production of commodity products such as convertible wood products, quality water, and forage for domestic livestock and wildlife and soils of low capability and high sensitivity for the production of amentity values such as open space, stable watersheds, and wildlife.

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Zone Coordinating Requirements

1. On range juniper control projects remove only the number of trees necessary to maintain a vigorous cover of associated herbacious vegetation.

2. Restrict phreatophyte control in riparian sites pending further study.

3. Manage areas of the zone for sustained production of desirable tree species posts and fuel wood.

4. In slash disposal leave several small unburned piles per acre to provide cover for small game, except on fuel breaks.

5. Provide benefits for wildlife in the design of range juniper control projects.

6. Coordinate fuel wood removal with Juniper type conversion projects.

7. Protect areas of ponderosa pine and occasional areas of unique vegetation from damage during vegetative control projects.

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Section 2 - Coordinating Requirements

2. Management Zones

Chapparral Zone

Description. Chaparral encompasses approximately 850,000 acres of the Tonto National Forest. Chaparral areas vary greatly in density and specie composition between isolated areas. These acres are widely scattered over the Forest varying in size from a few acres to several thousand acres.

The zone ranges in elevation from 3500 to 6500 feet and occupies the steep, rough, country below the Mogollon Rim lying above the desert zone and below the intermediate zone.

Principal shrubs found in the chaparral zone are mountain mahogany, live oak, skunkbush, sumac, desert ceanothus, holly leaf buckthorn and manzanita, however there are usually many other species present.

Browse species, where penetrable, receive some use from game and domestic livestock along with smaller game animals. Larger areas of continuous dense chaparral areas behind the outer fringes receive very little use from any animals although birds may use the area to a limited extent.

The zone is important from the standpoint of water production. Research has shown that there are opportuntities for increased water yield.

Chance of a disasterous fire is reduced to a degree in any chaparral conversion. Much of the total area does not lend its self to conversion because of soils, slope, and other environmental considerations. It is estimated that the above limiting considerations would eliminate 60% of the total chaparral area leaving about 255,000 acres of treatable area. In an endeavor to leave an eye pleasing landscape another estimated 30% would be left as a mosaic pattern distributed throughout the treated area. The untreated areas would be benefical to any animals using the area. Riparian areas would be included in the untreated percentages estimates leaving 178,500 acres that could probably be treated.

Public pressure will be exerted to convert the chaparral areas to grass for water production based on total acreage.

The general public uses converted areas for recreational purposes during cooler weather.

FOREST MULTIPLE USE GUIDE

Management Emphasis. Management emphasis will be directed towards managing lands with (1) high potential for water production and low to moderate sensitivity to vegetation manipulation for increased water yield and livestock use at predetermined levels and (2) soils of low capability and high sensitivity for the production of amenity values such as open space, stable watersheds, and wildlife habitat.

Zone Coordinating Requirements

1. Plan conversion projects to break up continuous fuel types to lessen the hazards in areas of significant value and high fire risk.

2. Base water yield improvement projects on soil resource inventories and hydrologic surveys. Correlate with conflagration control.

3. Protect isolated areas of unique vegetation such as small areas of ponderosa pine and small patches of mature chaparral.

4. Reestablish timber in chapparral areas which once supported timber species.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Desert Zone

Description. This zone comprises the low dry portions of the Forest. It includes large areas of nearly flat terrain, rolling foothills and rugged, rocky peaks and ridges such as those found in the Superstitions and Goldfields. Elevations range from 1300 feet near Phoenix to nearly 4000 feet. Soils are quite variable but nearly all have characteristics that are favorable for the development of deep rooted wood species. Large areas of deep fertile soils are found within the zone.

Temperatures in excess of 100° are common during the summer months. Evaporation from free water surfaces exceeds 8 feet per year. Winter temperatures are relatively mild with below freezing temperatures occurring only for a few days during December and January. Annual precipitation ranges from 8 inches at the lower elevations to 18-20 inches at the higher elevations.

All of the major water impoundments, as well as the extensive major streams of the Tonto, are found within this zone. Intermittent stream channels with their fringe of riparian vegetation wind their way through the contrasting desert vegetation. Perennial springs and seeps are numerous in this zone providing a natural source of water for the fauna.

Vegetation composition is extremely complex and variable. Riparian areas may be dominated by a mixture of tree live oaks, sycamore, cottonwood and hackberry. Other riparian areas may be dominated by pure dense stands of mesquite, while others are characterized by lush evergreen chaparral species.

The interest catching saguaro cactus is the most noticeable of the numerous cacti and cactus-like plants found in this zone. A variety of woody-tree-like plants such as palo verde, mesquite, and creosote bush are quite common. Low growing perennial shrubs are common. These include snake-weed, burr-sage, and turpentine bush. Perennial grasses are scarce except at the upper elevations. Curley mesquite, hairy and side-oats grama and aristida species are the most abundant grasses found in the zone. Bush muhly, plains-lovegrass, dropseed, desert stipa, black grama are reasonably abundant but confined generally to the higher elevations.

Annual forbs and grasses are common during years of favorable precipitation, with winter-spring moisture producing a much more varied and abundant crop of annuals than summer moisture. Red brome and filaree are the most abundant annuals. Abundant annual production can result in serious fire control problems during June. The annual cover also offers an opportunity to use fire as a management tool.

A wide variety of wildlife species live yearlong in the zone. It also provides seasonal habitat for migrating species, particularly song birds and waterfowl.

Threatened species such as the Southern Bald Eagle and the Gila monster and spine dace are dependent upon this zone for their habitat.

Both domestic sheep and cattle use the forage produced in the zone. Sheep use is confined to the early spring while most cattle use is year long. The more productive areas of the zone can be intensively managed for the production of domestic livestock. Use by domestic livestock should be regulated to meet the extreme fluctuations in forage production.

Mining, ~~and~~ prospecting and ~~individual~~ rock collecting are common uses. A number of major copper producing mines are located in the desert zone.

Indian ruins are commonly found and some are quite extensive.

Because of the attraction of warm favorable climate, interesting geology and vegetation and openness of the country, dispersed recreation use during the winter-spring months is popular. This is particularly true when desert wildflowers are abundant.

Areas of deep, fertile soil above 2500 feet can be successfully seeded.

Management Emphasis. Management emphasis will be directed towards (1) maintaining native desert fauna and flora on the lands with soils of low to moderate capability and moderate to high sensitivity for the production of amenity values such as stable watersheds, open space, wildlife, natural beauty, and dispersed recreation and (2) managing lands with soils of high capability and low sensitivity to soil disturbance for the production of commodity products such as forage for domestic livestock and wildlife and quality water.

FOREST MULTIPLE USE GUIDE

Zone Coordinating Requirements

1. Give special emphasis in grazing management to protection and maintenance of important riparian areas.

2. Avoid disturbance and destruction of unique and uncommon desert vegetation such as the saguaro cactus.

3. Propose seeding of depleted areas where soil surveys indicate potential for success.

4. In accordance with State laws provide protection for native desert plants.

5. Delineate as special management units areas of high capability and low sensitivity to soil disturbance.

6. Provide protection for saguaro cactus and unique vegetation in seeding projects.

7. Do not perform type modification work in riparian areas.

8. Restrict fuelwood removal to down dead material.

9. Provide for the habitat needs of migrating waterfowl in all management activities.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Travel Influence Zone

Description. This zone encompasses irregular strips and parcels of land along existing and planned overland routes of travel and areas in and around existing or planned developed recreation sites. These are areas in which natural beauty and other aesthetic values dominate the outdoor environment and provide significant recreational opportunities for people visiting or traveling through the zone.

An outstanding variety of scenery is available. The major emphasis in this zone will be on the amenity values such as the beauty of the landscape, outdoor recreation environment, and wildlife for public enjoyment. All other resource production and use is secondary to natural beauty.

Major routes of travel, developed and inventoried recreation sites and summer home groups are included in the zone.

The zone is generally restricted in width through much of the densely vegetated pine type. It gradually widens through the sparce woodland and chaparral types to large panoramic views in the open desert. Vistas provide elegant views of many natural features and associated vegetation which contributes greatly to outdoor enjoyment and aesthetics.

Each year thousands of people take advantage of the recreational opportunities available by visiting or traveling through the zone. For many of these visitors, this is their only contact with the Tonto National Forest.

Management Emphasis. Management emphasis will be directed towards managing the land for the production of amenity values such as the beauty of the landscape, outdoor recreational environment, and wildlife for public enjoyment. Plan, develop, and maintain recreation sites and facilities for intensive occupancy, use, and enjoyment of the public on lands with low to moderate sensitivity to disturbance. Develop and manage wildlife habitat, timber, livestock, range, soils, and water resources at levels to best enhance and maintain the outdoor recreational use and beauty of the landscape.

FOREST MULTIPLE USE GUIDE

Zone Coordinating Requirements

1. Recognize natural beauty and other aesthetic qualities and values as the prime resource of this zone and maintain, protect, and enhance this value.

2. Withdraw portions of the zone from mineral entry if needed to protect scenic, aesthetic, and recreation values.

3. Construct fences and other improvements out of materials that are aesthetically pleasing and fit the environment.

4. As existing improvements are amoritized, their replacements should be relocated to enhance this zone.

5. Obtain cooperation from the County and State Highway Departments to improve and clean-up this zone, especially the rest areas and other developed sites.

6. Minimize or eliminate noise and dust in locations near recreation developments and restrict activities that create air pollution to periods when public use is extremely light.

7. Minimize the impacts of Forest Service developed recreation improvements on private land.

8. Provide for vegetative screening between recreation sites and main routes of travel.

9. Establish corrals and water developments for saddle and pack stock where they will not interfere with recreation environment, water quality, and natural beauty.

10. Program range livestock use of developed recreation sites during periods of off-season recreation use. If this use is compatible with recreation use of the grassed forb resource.

11. Avoid, where possible, livestock driveways along heavily used travel routes.

12. Prohibit predator control stations.

13. Develop wildlife habitat improvement programs where they are compatible with recreation values and will not create safety hazards.

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14. Provide for intensive insect and disease detection and use control measures compatible with recreation and natural beauty.

15. Discourage logging activities that will coincide with periods of heavy use.

16. Plan silvicultural treatments that will give the forest a "managed" appearance without detracting from natural beauty and conduct treatments outside heavy recreation use season.

17. Where practical skidding will be by tree length and away from main roads within this zone to avoid damage to the residual stand and minimize soil disturbance.

18. Prohibit undesignated cutting of fuelwood, Christmas trees, poles, posts and other convertible and non-convertible products except within rights-of-way to be cleared or in connection with approved roadside beautification projects. Designated safety hazard snags may be cut for fuelwood if such an operation will not adversely affect the zone.

19. Allow only vegetative manipulation projects that can be blended effectively into the natural setting.

20. Blend watershed restoration work into the natural setting.

21. Recommend disapproval of all oil and gas drilling.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Water Influence Zone

Description. This zone consists of areas with significant existing or anticipated water-oriented occupancy, use, and enjoyment for water-oriented outdoor recreation along streams and rivers, and around reservoirs on the Tonto National Forest. It includes area immediately adjacent to and surrounding developed or planned sites along the banks and shores where people may fish or stroll. It also consists of areas adjacent to the water along overwater travel routes and water sports use where the immediate scenic frame and foreground are subject to close scrutiny.

The uses and activities are oriented around overwater travel and outdoor recreation. Natural beauty, aesthetic values, and water quality and usefulness are important components of the environment. Most of these zones on the Tonto are vital for furnishing potable water and hydro-electric power for the Phoenix metropolitan area.

The zone is irregular in shape, depending on the water environment, existing and planned public occupancy, use and enjoyment, and the character of the terrain and vegetation. In some areas of the Forest, it coincides with the Travel Influence Zone. The Water Influence Zone is a major attraction for recreationists who reside in the arid metropolis adjacent to the Tonto National Forest.

Management Emphasis. Management emphasis will be directed towards maintaining or improving water quality and the production of amenity values such as improved aquatic environment, beauty of the landscape, outdoor recreational qualities, and wildlife and fisheries for public enjoyment. Plan, develop, and maintain recreational sites and facilities for intensive occupancy, use, and enjoyment of the public on lands with low to moderate sensitivity to disturbance. Develop and manage wildlife habitat, timber, livestock, range, soil, and water resources at levels to best enhance and maintain water quality, outdoor recreational environment, and natural beauty of the landscape.

Zone Coordinating Requirements

1. Construct fences and other improvements out of materials that are aesthetically pleasing and fit the environment.

2. Consider withdrawing portions of the zone from mineral entry if needed to protect natural beauty, recreation or scenic values.

3. Evaluate water pollution potential and flood potential prior to and recreation development.

4. Emphasize recreation developments that tend to disperse use into lighter used areas.

5. Prohibit specialized uses that will degrade the recreation potential and environmental qualities.

6. Encourage stable stream and lake water levels during the recreation season.

7. Prohibit pack and saddle stock in developed campgrounds.

8. Minimize impacts of developed Forest Service recreation improvements to private lands.

9. Provide for vegetative screening of terrain between recreation sites and main routes of travel.

10. Prohibit the location of borrow areas, quarries, storage yards, and work camps in areas where they reduce recreation values and natural beauty, and where they result in water pollution.

11. Program range livestock use of developed recreation sites during periods of off-season recreation use.

12. Avoid where possible, livestock driveways.

13. Give special attention to the protection or enhancement of fishing habitat and spawning beds in any projects within the zone.

14. Manage beaver to enhance recreation values and to avoid resource damage.

15. Develop wildlife habitat improvement programs which will be compatible with recreation values and not create public safety hazards.

16. Prevent rodent control projects which are dangerous to the public.

17. Prohibit predator control stations.

18. Provide for intensive insect and disease detection and use control measures compatible with recreation and natural beauty and adjacent timber stands.

19. Encourage logging activites that will coincide with light periods of use.

20. Blend watershed restoration work into the natural setting.

21. To the extent possible, control grazing to achieve soil stabilization.

22. Allow only vegetative manipulation projects that can be blended into the natural setting.

23. Protect recreation and aesthetic values in the use of fire as a management tool.

24. Require 100% slash disposal as soon as possible following timber harvest or right-of-way clearing activities. Where this work is performed use methods which will not damage aesthetics or water quality of the zone.

25. Provide for public access to reservoirs, shores and stream banks.

26. Carry out water monitoring, restrictions and closures to comply with Forest Service, State, and Federal water pollution laws and policies.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Research Natural Areas

Description. The Bush Highway Research Natural area has been approved and classified under Regulation U-4 by the Chief of the Forest Service as a research natural area. This area is in the bier-sage creosote bush vegetative type.

Management Emphasis. Management emphasis will be directed towards maintaining and protecting research natural areas from activities which will directly or indirectly modify ecological processes and prohibit unnatural encroachment which will damage or destroy scientific and educational values.

Zone Coordinating Requirements

1. Fence and close to grazing.

2. Withdraw area from mineral entry.

3. Allow dispersed recreational use.

4. Do not permit activites that will result in significant disturbance of this site.

5. Close to use by vehicles.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Experimental Forest

Description. Sierra Ancha Experimental Forest consisting of 13,255 acres draining into Roosevelt Lake was established on the Tonto National Forest in 1932. This area was set aside primarily to study the effects of uses on water production.

The Rocky Mountain Experiment Station is responsible for initiating and supervising all experimental work. District personnel commonly administer timber sale contracts and suppress wildfire. Resource activities such as hunting and dispersed recreational uses are unrestricted at this time. No grazing is permitted in the fenced portion of the experimental forest.

Management Emphasis. Management emphasis will be directed towards maintaining and protecting experimental forests and ranges by prohibiting activities and uses which directly or indirectly affect planned research on the areas.

Zone Coordinating Requirements

Recognize research as the primary use of experimental areas and curtail resource uses and activities according to direction received from the Rocky Mountain Experiment Station.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Wilderness

Description. The Mazatzal, Sierra Ancha and Superstition Wilderness are entirely within the boundaries of the Tonto. Of the 20,062 acres of Pine Mountain Wilderness, 11,034 acres are on the Tonto and the balance is on the Prescott. Vegetation in these areas ranges from the semi-desert type to the mixed conifer type.

Each of the Wildernesses offer many benefits, such as enjoyment of outdoor solitude and contemplation, identification and evaluation of personal values, spiritual renewal and satisfaction, and physical and mental challenges.

Wilderness management must be flexible so as to provide for differences in terrain, geographic characteristics, climatic conditions, vegetation, patterns of use, and local customs both within and between the Wildernesses. Wilderness management will provide opportunities for primitive and unconfined recreation use and public enjoyment. Ecological, archeological, geological, scenic, and historic values will be protected. Wilderness will also be managed to maintain stable watersheds, plants, and indigenous animals. Authorized uses and activities will be administered so as to minimize lasting adverse effects on wilderness environment and values.

Management Emphasis. Management emphasis will be directed toward protecting, restoring natural conditions, and maintaining the physical and biological characteristics of the Wilderness environment in a near natural condition and untrammeled by man and his influences.

The following Coordinating Requirements apply to all Wildernesses on the Tonto.

Zone Coordinating Requirements

1. Consider the possibility of air contamination when planning protection and development projects.

2. Stocking of livestock on Wilderness allotments will make allowances for Wilderness values.

3. Use grazing systems and management practices compatible with Wilderness.

4. Avoid the construction of range improvements except where absolutely essential to protect Wilderness values and then blend them in with the landscape.

5. Limit commerical outfitter and guide services to that required to meet the public demand and capacity of Wilderness acreage.

6. Locate temporary commercial outfitter camps for hunting, fishing, and Wilderness trips where there is a minimum of conflict with public use.

7. Limit recreation improvements to those which are needed to protect Wilderness values and public health.

8. Limit all use at areas of heavy concentration to the capacity of the area.

9. Prohibit the establishment of garbage and refuse dumps.

10. Discourage defacing or cutting on the trunks or branches of live trees.

11. Utilize all means to minimize pollution along trails, streams, and springs.

12. Soils will be considered before undertaking any practices that will disturb the surface cover.

13. Exercise surveillance for accelerated erosion areas.

14. Vegetative restoration projects must be in strict accordance with established Wilderness policy.

15. Prohibit water yield manipulation projects.

16. Minimize the effects of water impoundments, power transmission lines and other related developments which may be authorized by the President.

17. Maintain wildlife habitat compatible with Wilderness values.

18. Prohibit predator control programs.

19. All work projects and management of resources will be coordinated to insure the well-being of all forms of wildlife native to the Wilderness.

20. Take every opportunity to make aerial observations to keep current on mining activities and to supplement ground checks.

21. Limit roads required for mining purposes and blend those necessary into the environment.

22. Minimize the adverse effects of timber cutting allowed in connection with mining activities.

23. Permit controlled burning for the preservation or enhancement of the Wilderness resource with approval of the Chief.

24. Stress the importance of fire prevention in contacts with Wilderness users.

25. Enforce fire restrictions during periods of extreme fire danger.

26. All trails will be properly drained.

27. Directional signs will be placed so as to minimize the impact upon Wilderness resource.

28. Prohibit the use of mechanized equipment except as provided by the appropriate authority.

29. Identify lands capable for producing forage and are now included in a grazing allotment, critical wildlife habitat, watershed protection, and heavily used recreation areas as management units on the multiple use map and develop management decisions to protect their wilderness values.

30. Information will not be designed and dissimulated that will attract visitors.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Mazatzal Wilderness

Description. The Mazatzal Wilderness was established as a Primitive Area in 1938 and redesignated as Wilderness in 1940. In 1964 it was included in the National Wilderness Preservation System through passage of the Wilderness Act. The area lies within four Ranger Districts.

The Wilderness embraces the north end of the Mazatzal Mountains. It extends from Alder Creek Spring northward 30 miles to Hardscrabble Mesa, and from the Mazatzal Divide westward almost to the Verde River, approximately 15 miles. The Mazatzal Mountains are described as one of the desert "block" ranges, exceedingly precipitous, and broken by narrow vertically walled canyons. The only level area of any consequence is Polles Mesa to the north. From the mesa, the topography breaks sharply into the East Verde River.

Elevations range from 2400 feet in Canyon Creek near Bartlett Reservoir to 7888 feet at Mazatzal Peak. The climate varies from hot and dry in the desert at the low elevations, to cool and more humid in the pine-fir forest at higher elevations.

The vegetation of the Wilderness is representative of southwestern mountain ranges which rise up from the desert floor. Semi-desert vegetation at the lower elevations succumbs to perennial grassland, chaparral, pinon-juniper woodland, and finally the ponderosa pine-Douglas fir association at the highest elevations. Stream courses are characterized by riparian vegetation.

Ancient Indian ruins are abundant, particularly in the northern portion on Polles Mesa and associated areas near the East Verde River. Although minerals have not been found in commercial quantities, prospectors continue to search for them.

The Wilderness provides habitat for numerous species of wildlife as well as forage for domestic livestock. Water is not abundant and fishing is limited to the East Verde River where several species of native and introduced fishes are found.

A network of trails provide access into the Wilderness and at this time public use can generally be considered light.

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Zone Coordinating Requirements

1. Rotate use of campsites used by commercial outfitter.

2. Commercial outfitters will be permitted to construct temporary campsites only.

3. Stipulations for enhancing or maintaining Wilderness values will be in all commercial packer permits.

4. Encourage campers to use portable gas stoves in lieu of open fires requiring wood.

5. All known or suspected threatened species of wildlife will be given special consideration to perpetuate the species.

6. Require prospectors to hold soil disturbances to an absolute minimum on claims filed after June 3, 1966.

7. Advise user groups well in advance of new Wilderness regulations and policies regarding size limit of riding parties, camping restrictions at popular campsites, and requirements for grazing permits.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Pine Mountain Wilderness

Description. The Pine Mountain Wilderness was set aside as a Primitive Area in 1933 and designated as Wilderness in 1973. The Wilderness is divided between two Forests, the Prescott and Tonto, with only one District involved on the Tonto.

This relatively small area is located on the Verde Rim which divides the Prescott and Tonto National Forests. Pine Mountain, from whence the Wilderness gets its name, is 6800 feet in elevation. The lowest elevation is 4600 feet at the south boundary. The terrain on the Tonto is generally rough, steep and rocky and is dominated by the chaparral and semi-desert shrub vegetative types. Stands of pinyon-juniper are interspersed throughout. Ponderosa pine stands occur at the higher elevations.

Water is in short supply except for a few springs and pot holes. The average annual precipitation is approximately 20 inches. The higher country occasionally receives snow, but the precipitation is generally in the form of rain which occurs in the winter and again during the July-August rainy season.

The trail system which provides access into the Wilderness consists of 25 miles of existing Forest development trails. Visitor use is generally considered light at this time.

Zone Coordinating Requirements

Base Camps or facilities of permanent or semi-permanent nature will not be permitted within the Wilderness.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Sierra Ancha Wilderness

Description. The Sierra Ancha Wilderness was established as a Primitive Area in 1933 and redesignated as a Wild Area in 1951. With the passage of the Wilderness Act in 1964, the area was included in the National Wilderness Preservation System.

The Wilderness extends from Juniper Flat southward eleven miles to Coon Creek Bluff. It is five and one-half miles wide at its broadest point and one-half mile wide at its narrowest. The entire area is located on one Ranger District.

The Sierra Ancha Wilderness is one of the most picturesques in the Southwest. It embraces the top and main ridge of the Sierra Ancha Mountains, then plunges eastward into Cherry Creek. The area is exceptionally rugged. Precipitous box canyons, high cliffs, and abrupt changes in elevation make access difficult. The elevation varies from 7600 feet on Center Mountain to 3200 feet in the southeastern corner near Cherry Creek. In many cases there is a difference of 2500 feet in elevation within a mile's distance.

The rapid changes in elevation are accompanied by a variety of vegetative types within this relatively small Wilderness. The semi-desert type is found in the lower reaches, while progressing upward the chaparral, pinon-juniper, and ponderosa pine types are encountered. Patches of mixed conifer are scattered throughout the higher and wetter portions of the Wilderness. Stream courses are characterized by riparian vegetation.

Prospectors have literally covered the entire area in their search for asbestos, uranium, and other minerals. Active mining has occurred immediately adjacent to the Wilderness.

The Wilderness provides habitat for numerous species of wildlife as well as forage for domestic livestock. A network of trails provide access into the Wilderness and at this time public use can generally be considered light.

FOREST MULTIPLE USE GUIDE

Section 2 - Coordinating Requirements

2. Management Zones

Special Zone - Superstition Wilderness

Description. The Superstition Wilderness was established as a Primitive Area in 1939 and redesignated as Wilderness in 1940. In 1964 it was included in the National Wilderness Preservation System through passage of the Wilderness Act. The area lies within three Ranger Districts.

The Superstition Mountains are renowned for the legendary Lost Dutchman and Peralta gold mines. These legends have drawn and continue to draw the attention of prospectors from all over the United States.

The Superstition Mountains rise abruptly from the desert floor. The topography is generally rugged. The western portion consists of knife-like ridges divided by deep, sheer-walled canyons. Occasionally there are small plateaus or mesas formed where the ridges flatten out. The southern and eastern portions have broader mesas and the canyons are not as steep. Occasional peaks such as Pinto, Castle Dome, White, Iron, the Tortilla Mountains and Weaver's Needle rise majestically from the desert floor and form prominent landmarks. Elevations range from 6266 feet at Mound Mountain to 1800 feet in the bottom of Boulder Canyon.

Most of the Wilderness at the lower elevations is in the semi-desert vegetative type. Occasionally large blocks of chaparral and small blocks of woodland and ponderosa pine occur as the elevation increases.

Wildlife species most commonly seen are deer, javelina, rabbits, quail, dove, cactus wrens, roadrunner, the high-circling red tailed hawk, and many species of lizards and snakes. Domestic livestock also utilize the forage resource of the Wilderness.

A network of trails provide access into the area. Between 1962 and 1972, use of the Wilderness increased approximately 50 per cent. The primary season of use is from September through May when favorable climatic conditions and availability of water provide for a more hospitable visit. The majority of the use occurs in the western one third of the Wilderness which is adjacent to metropolitan Phoenix.

Zone Coordinating Requirements

Replenishment of bighorn sheep may be allowed upon approval by the Regional Forester after showing that grazing capacity is present.

Section 3 - Management Situations

RENEWABLE RESOURCES

AIR

Potential. More than with any other resource with which we work, air because of its fluid nature limits our control of its quality. Air is a resource vital to virtually every outdoor use and activity but is commonly taken for granted by its users. Air quality will significantly influence the productivity as well as the amenity values of the Tonto National Forest.

Air moving over the Forest from population centers may carry a high level of pollutants. Smelter fumes and smoke from the Miami area can kill or injure native vegetation which in turn causes damage to the watershed through the resultant erosion. The mining companies and the State are working together to reduce this source of pollution. Phoenix and its satellite towns provide the source of much air pollution emanating from automobiles, air planes, farm equipment and industrial plants.

In the desert or semi-desert any disruption of vegetation and soil surface will increase the possibility of dust pollution. At times this can be a major health hazard which may be amplified by the frequent temperature inversions. On the Forest the increase in people use on the many unsurfaced roads and trails, livestock driveways, open pit mines and other denuded areas all contribute to the amount of dust in the atmosphere.

Disposal of solid waste by burning is being phased out as the State establishes air quality controls. Sanitary landfills are being constructed as an alternative to open dumps. Restrictions and controls on other types of open burning are being tightened by both the State and counties.

Noise, a form of air pollution that may detract from mans enjoyment of the Forest, is presently pretty much uncontrolled by regulating agencies of either the State or counties. On the Forest many people are disturbed by noise created by motorcycles, motorboats and dunebuggies. Low flying planes over wilderness areas irritate solitude seekers. In campgrounds radios, stereos, television sets and power generators may be a disturbing source of noise. There are indications that noise as a pollutant may soon come under some Federal and State guidelines.

Demand. Clean and quiet air is associated with the National Forests by most people. Their Forest experience is reduced in quality in relation to the degree of pollution present from man-made sources. Plant growth, though more tolerant of some forms of air pollution, thrives best in pollution free air as is probably the case with animal life.

FOREST MULTIPLE USE GUIDE

HUMAN RESOURCE

Potential. The human resource and its impacts on the Tonto National Forest cannot be separated from our planning and management functions. Over one million people reside in the Phoenix metropolitan area. Add to this an annual visitor influx of over five million and it is easy to see that people play an important role in the administration of the Forest.

The State's two major population centers, Phoenix and Tucson, are within easy one to two hours driving distance of the Forest. Both cities and their environs are growing rapidly. The 1970 census shows a growth rate of 32.4% for Phoenix and 23.5% for Tucson. With a total state population of 1.7 million, the Phoenix and Tucson metropolitan areas account for 1.3 million or 80% of the total. Conservative estimates peg the population of the greater Phoenix area alone at 1.6 million by 1980 and at two million by 1985. This population surge has resulted in city growth adjacent to the Forest that is well integrated both culturally and politically. Much of it represents people in retirement or semi-retirement status from all areas of the North American continent.

The Globe-Miami areas and portions of south and west Phoenix retain pockets of the Spanish and Mexican cultural identities and several Indian reservations abut the Forest on the east and west boundaries. The young generation has, in recent years, formed an increasingly identifiable culture that makes use of the Forest, particularly those areas along the Salt and Verde Rivers and the "Chain of Lakes". Alcohol and the use of drugs are primarily responsible for the need of increased law enforcement capabilities on the Forest.

The Indian has left a lasting impression on the lands of the Tonto and its surrounding area. Remains of their culture dating to 1700 B.C. are well preserved in many areas of the Forest creating an avid interest by present day users to understand better the history of these original settlers.

The Forest works closely with the San Carlos Apache tribe in developing their members as effective fire fighting teams. Other tribes provide enrollees in the N.Y.C. and other youth work programs.

An equal amount of interest is exhibited by today's Forest users in the more recent history and culture of the Mexican and Spanish Americans

and their impact on the lands of the Tonto and its neighboring areas. People come from all over the county to search for Peralta's treasure, supposedly in the Superstition Mountains.

People who ranched and cultivated the land prior to its status as National Forest, many of who remained to become permittees on the Forest, have contributed to the flavor and culture of this area. The inhabitants of such small communities of Young and Punkin Center provides a source of manpower to the Ranger Districts involved and through their interest and knowledge of local conditions help shape the management direction of the Forest.

The expanding cosmopolitan population that uses the Tonto National Forest is generally well informed, demanding and possessed of diverse interests which they seek to satisfy on the Forest. Added to the pressure of increasing numbers of people, varied demands on the resources and proximity to metropolitan areas are the impacts resulting from year long use. The mild climate in the fall-winter-spring season makes the semi-desert popular for all forms of outdoor activities. In the summer the "high-country" receives increased use because of the need for climatic relief. The demand for summer homes on private property within the Forest boundary remains high and subdivision of this land continues at a rapid pace.

Demand. The rapid expansion of population, particularly in the Salt River Valley, and the increasing numbers of winter visitors to both the Tucson and Phoenix areas are placing extremely heavy demands on the resources of the Tonto National Forest. The presence of water bodies on the Salt and Verde Rivers are particularly enticing to the affluent population of Phoenix and the rest of the state for boating purposes. According to a 1973 report on the State Lake Improvement fund more than 46% of boat owners interviewed preferred the Tonto lakes on which to pursue their activities.

The desert environment that makes up a large portion of the Forest with its dry, warm climate, clean air and sunshine continues to attract more people. This is particularly true of the retirement age group who have few restraints on the amount of leisure time available to them.

As population figures climb, so will demands on resources, uses and activities on the Forest. To protect basic resources it may be necessary to impose restrictions, controls and priorities on people demands.

FOREST MULTIPLE USE GUIDE

NATURAL BEAUTY

Potential. The Tonto National Forest offers a wide variety of climate and scenery ranging from the warm, cactus-studded desert to cool pine covered mountains. The most notable scenic attractions on the Forest are the Superstition, Mazatzal and Sierra Ancha Mountains, the Verde and Salt River Lakes and the Mogollon Rim.

The combination of a pleasant climate and unique scenic opportunities make the Forest a favorite with the winter visitor. The opportunity to observe the varied wildlife and the numerous cactus and wild flowers all add to the outstanding beauty of the area.

Demand. People are becoming more interested in, and conscious of, the appearance of the Tonto National Forest. This increased interest makes it imperative that resource management practices be in harmony with the surrounding landscape. In 1972 over 30% of the recreation use on the Tonto National Forest was related to viewing scenery and driving for pleasure. The natural beauty of an area can be affected by roads, power lines, timber sales and plant type conversion projects. When proper attention is given to placing man made features on the land, scenic quality can be maintained and in some cases enhanced.

FOREST MULTIPLE USE GUIDE

OPEN SPACE

Potential. The Tonto National Forest is made up of over 2,900,000 acres of varied vegetation, landforms, and geology. Of this area approximately 360,000 acres is classified as Wilderness. Large expanses of roadless area and rough terrain give man ample opportunity to experience freedom and solitude by getting away from the works of man and man himself. For the most part the higher elevations of the Forest are uncluttered by structures providing an unblemished backdrop to many broad vistas.

Pollution arising from the nearby, metropolitan area and local mining developments is threatening the clear air that is to be found in the area.

Demand. Arizona is one of the fastest growing states, and with this growth, physical and psychological needs for the amenity benefits of open space will increase. The Tonto National Forest is now and will continue to supply open space demands for an increasing National population. The "Get back to nature" attitude of some groups will affect demand for open space. This increase in demand requires management of open space in order to retain its high quality.

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VEGETATION

Grasses and Forbs

Potential. The land within the Tonto National Forest has produced grasses and forbs for the grazing of livestock and wildlife for over 100 years. Under conditions of non-abuse or proper management the grasses and forbs have performed the important function of holding soil in place, regulating water flow and providing cover for smaller forms of wildlife. In many cases their bright flowers and foliage provide an esthetically pleasing landscape at certain times of the year.

Past abuse of this resource, largely due to the over-grazing of domestic animals, is apparent throughout most of the Forest. Recovery, particularly in the desert and semi-desert areas, is slow. Management practices now being used recognizes the fragility of these types of soils and should in the future improve the available quantity and quality of the forbs and grasses resource.

Demand. The traditional demands and uses of grasses and forbs as forage for livestock, wildlife and for watershed protection are generally recognized. Today, although these values remain valid and vitally important, other less obvious values are receiving increasing recognition and attention. These often overlooked values of the past include the value of grasses and forbs for natural beauty, recreation, food and cover for non-game wildlife species and their role as soil builders and key environmental links for insectivora and soil organisms. They further constitute a major segment of the plant biomass in the energy cycle. This resource, managed and used intelligently, can provide diversity and stability to the total ecosystem.

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Shrub

Potential. The shrub resource is abundant on the Tonto National Forest. Occuring at elevation of between 3000 and 6500 feet this resource covers a major portion of the total area of the Forest. The most dense stands are located within the Chapparal Zone ranging in elevation from 3600 to 6500 feet. However, shrub growth may be found intermingled with fingers and islands in Desert, Woodland, and Intermediate Zones.

In open stands, particularly in the Desert Zone, the shrub is an important addition to the diet of both domestic and wild browsing animals. This is particularly true when sub-normal rainfall results in little or no growth of annual grasses. Shrubs are especially important components of the plant community in both the desert and semi-desert areas of the Forest because of their deep tap-rooted growth habit that enables them to survive and prosper in these dry, often rocky, well drained sites too harsh for some other plant forms.

The denser chapparal stands which cover approximately 255,000 acres of the Forest is so impenetrable to both livestock and wildlife that it contributes little grazing capacity. Because of its density the watershed on which it occurs produce little water because of both high plant transpiration and high evaporation loss when rainfall is intercepted by dense vegetative cover.

Demand. The demand for the shrub resource has recently taken on new direction brought about primarily by an increased enviromental awareness and interest on the part of the general public. A heightened interest in its asthetic values tied to its role as an oxygen and water producer in a polluted atmosphere and a soil stabilizer in critical soil areas have modified the contentions that those species not palatable to wildlife or domestic livestock should be removed. The Tonto, because of its location adjacent to large and growing metropolitan centers and because of its fragile desert soils places heavy demands on the shrub resource.

Trees

Potential. Little tree growth exists in the desert areas of the Tonto except in some of the dry washes. In the semi-desert areas there are extensive stands of juniper, sometimes mixed with Pinyon. At the higher elevations, particularly in the area under the Mogollon Rim the Forest produces stands of commercial timber that helps support the Snowflake pulpmill as well as sawmills at Payson, Heber and Globe.

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The forested area of the Tonto has many other values. The tree covered slopes give a variety to the landscape and a setting for the higher peaks. Trees provide ground cover for watershed protection and furnish shade shelter for people and many species of birds and other wildlife.

Demand. The demands and uses of trees have been rapidly expanding. The current demand for sawtimber and pulp threatens to exceed the supply and has resulted in sharp increases in the price of building materials. Concurrent with this increased demand for wood, lumber and other commodity products, there has been increased public awareness and concern for quality life in a quality environment. To many segments of this concerned public, even temporary or relatively minor changes in the landscape are not acceptable.

Water

Potential. The opportunities for significantly increasing the supply of water are limited. For this reason and sound land management practices the watersheds from which the water is derived should receive management emphasis to insure a high quality of water.

The Tonto National Forest presently produces about 200,000 acre feet annually from the Salt, Verde, Agua Fria, and Queen Creek watersheds. Water yield varies greatly over the Forest depending on precipitation and evaporation rates. In evaluating potential water yield increase these two physical factors plus slope stability, soil storage capacity, and transpiration by vegetation must be considered along with political constraints. Of the four vegetative types (pine, juniper, chaparral, and desert shrub) chaparral possess most of the potential for increasing yield. A lesser amount of potential also exist in the pine type.

For the most part, water that comes from the National Forest watersheds is of high quality, requiring little or no treatment before use. However in areas where we have concentrated use such as mining, recreation and grazing; many opportunities to improve water quality exist.

Demand. In the economics portion of this report we mentioned that when the cost of a product is low the demand is almost unlimited. This is indeed the case with irrigation water. It is a demand which we never can expect to fully meet.

While studying this demand and determining how we can best satisfy a portion of it, it is our intention to develop the necessary information to increase yield, to maintain and enhance the quality, and to encourage efficient use.

FOREST MULTIPLE USE GUIDE

Wildlife

Potential. Within the boundaries of the Tonto National Forest are nine basic and distinctly apparent vegetative types. This great diversity of types with each ones accompanying vegetative make up creates a variety of habitats. Due to this variety of habitats there are large numbers of mammal, bird, fish, reptile, and amphibian species using the Forest for all or part of their life's necessities.

All wildlife found on the Forest have certain basic needs for survival. These include food, water, cover, and space or privacy. Other use of Forest land by range, recreation, timber, water will definitely have an impact on the wildlife resource. The impacts due to other Forest uses should be fully understood as they are twofold. Any disturbance to a particular.area should benefit certain species and be detrimental to others. It is important to know which species are being affected and in which manner.

Big game species include elk, mule deer, white-tailed deer, javelina, turkey, bear, mountain lion and pronghorn antelope. Of these, mule deer and javelina are the most numerous. Other game species include Gambel's quail, Mearn's quail, mourning dove, white-wing dove, band-tailed pigeon, a variety of waterfowl that include the Canada goose, shoveler, bufflehead, greening teal, cinamon teal, mallards, etc. and mammals that include the Abert's squirrel and cottontail rabbits. Fish include rainbow trout, catfish, bass, sunfish, crappie, and carp with most of the fisheries being operated on a put and take basis.

The game species form only the tip of the iceberg when compared to the total wildlife resource of the Forest. In years to come these little known and seldom considered species should receive their rightful consideration. These species include the Yuma antelope, groundsquirrel, desert tortoise, gila monster, phainpepla, red faced warbler, turkey vulture, coral snake and rattlers.

Demand. The population explosion in the Tucson-Phoenix area has tremendously increased the demand on the wildlife resource. This increase in demand occurs at a time when there is a slow but steady decline in the resource. The decline in the resource stems basically from loss of habitat due to road construction, recreation facilities, mining, grazing, etc. With some species such as the Bald Eagle, osprey, black hawk and zone-tailed hawk, the disturbance of people accentuates the effects of loss of habitat. Losses also occur from the illegal shooting or collection of such species as desert tortoise, gila monster, hawks, owls, etc. The State of Arizona has laws protecting virtually all species found within the State.

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The land will only support a given quantity of biomass. The Forest will support only a given amount of deer, elk, bear, turkey, etc. Demand is alread far in excess of supply and will continue to be so. The only method of increasing supply at our disposal is to improve the quality of the habitat for these species.

As society gets further away from the frontier philosophies of the last century increasing numbers of people are turning to the non-consumptive uses of wildlife. Bird feeders and baths are big business as is the sale of books on all aspects of the human environment. With this type of use will come the demand for more consideration in our management practices for these species.

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Section 3 - Management Situations

NONRENEWABLE RESOURCES

ANTIQUITIES

Potential. The Tonto National Forest is an important study area for the archaeological profession. The density of sites is very high. It is considered as somewhat of a "melting pot" because of the cultural interaction which occurred between neighboring civilizations. One of the objectives of archaeological studies in this area has been to determine changes in cultural practices and adaptation of material possessions between civilizations. The Sinagua, Hohokam and Salado cultures interacted within the Tonto boundaries.

The abundance of sites on the Tonto National Forest does not diminish their importance to the archaeological profession. The area acts as a bank of undisturbed sites which, because of National Forest status, are not subject to rapid deterioration by the activities of modern man.

It has become apparent, however, that if we are to have even a minimal record of man's development, steps must be taken to preserve sites or preserve information through controlled excavation, analysis of recorded materials, and publication of recovered data. The archaeologist's reconstruction of past cultural systems not only helps to satisfy man's curiosity about his predecessors but provides a better understanding of man's past adaptations to his social and natural environments which could make future adjustments easier. A better understanding of prehistoric land and water use in southern Arizona, for instance, could save water and reduce property loss for the modern Arizonan.

The inventory of sites is by no means complete. With every special inventory project undertaken, many more sites are discovered than were thought to be present initially. Each site preserved intact is, in a sense, data in the bank to be drawn on in the future.

Demands. Arizona contains several institutions of higher learning and museums all of which are vitally interested in archeological studies. The demand to excavate sites for research and educational purposes will increase. Since Arizona is a storehouse of archeological information, the resource must be carefully guarded in the management of National Forest lands.

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Arizona has a large number of amateur archeologists and hobbiests who consider it their privilege to pot hunt at will. Professional archeologists recognize the need for an educational program to convince the public of the necessity of excavation only by trained scientists. The Forest Service can assist in this program.

There is a need for closer coordination between the profession and the Forest Service to insure that conservation archeology rather than salvage archeology is practiced to the extent possible where man made projects are planned. This is expected to follow logically as Forest Service employees become more cognizant of the importance of the storehouse of archeological sites on the Forest, inventories become more complete, and their importance to the profession is recognized.

Major types of human activites in the Southwest which pose threats to the archaelogical resource are land development, agriculture, mining, land reclamation and flood control, recreation, vandalism, and highways, public utilities and pipelines. Protecting the archaeological resource from these activities is even more important when it is acknowledged that archaelogical remains are a limited, fragile, nonrenewable part of the environment, and disturbance of them results in irreversible and cumulative impacts.

Vandalism (pot hunting) is the greatest danger to the archaeological resource. A small amount of vandalism on any single site is no less important than extensive vandalism over a large site or group of sites. The destruction of evidence in a single room may make it impossible to trace the cultural processes and living styles of the occupants by destroying a single link of a living pattern.

The profession also sees the excavation of sites by institution and individuals with doubtful credentials as being a possible danger to the resources. Many academic institutions offer field courses involving archaeological investigations. Quite often the institutions are not qualified to offer the subject or the person in charge is not a qualified archaeologist. In some cases evidence is not properly cataloged or stored for study. Artifacts are sometimes dispersed among students and faculty and displayed as a collection of curiosities.

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MINERALS

Potential. Much of the Tonto has mineral potential. Minerals found include iron, asbestos, lead, tungsten, fluorspar, uranium, gold, silver, mercury, copper, barite, and amethyst. Common varieties such as decomposed granite, sand, gravel, and pink and white quartz are also found.

Mining activity has been cyclic. Prospecting and exploration is a continuing proposition. However, frequently there is a tremendous increase in the search for a particular mineral. One of the more pronounced cases in point was the uranium boom which occurred from 1954 to 1956 and was centered in the Sierra Ancha Mountains. Such flurries of activity generally last for a year or two and then subside. They often create many miles of undesirable abandoned roads, damage to renewable Forest resources, and abandoned camps and trash dumps. Orderly development of mineral resources with a minimum of disturbance to the renewable resources is difficult to accomplish under normal levels of prospecting. During these periods of peak activity it is nearly impossible.

The Forest has numerous mining claims. Over fifty percent have been filed since 1955. Existence of large numbers of claims results in time-consuming contacts to obtain clearance for project work or to keep mining operations within the limits of the law.

The Lost Dutchman and similar legendary mines continue to attract professional and amateur treasure trove hunters in spite of repeated frauds, shootings, and claim jumping in the Superstition Mountains where the mines supposedly exist.

Demand. As the population increases and technology advances, the demands for minerals, both metallic and nonmetallic, will soar. The science of metallurgy continues to perfect means for extracting metals. An example is the sponge iron being used on copper ore. Large copper ore bodies exist on the Globe Ranger District while a portion of the Pleasant Valley Ranger District is blanketed with iron ore claims suitable for such use.

The dwindling supply of our national mineral reserves stimulates the search and has caused the Government to offer subsidies and other incentives for locating certain minerals. Although the demand varys, it is great for nearly all of the metalliferous resources and some nonmetalliferous ones. Since minerals are found throughout the Tonto National Forest, the demand placed on the land for minerals will continue to grow.

The mining laws give the prospector or miner, rights and resources needed to develop a mine. By law, he is entitled to ingress and egress. Recognizing these rights, Forest officers have authority to administer the surface resources on the unpatented mining claims of the Tonto National Forest. To accomplish this, cooperative agreements may be written with the mining industry to prescribe the activities of prospecting and mining and safeguarding surface resources.

Surveillance will be maintained to prevent improper entry or use of the land under the guise of the mining laws. Prompt action will be taken to bring legal action against those found to be in violation of the mining laws. No favoritism can be shown in this endeavor.

FOREST MULTIPLE USE GUIDE

SOILS

Potential. The wide variety in land forms, climate, geology, and vegetation adds beauty to the Forest and uniqueness to the soil patterns. The potential of the soil ranges with the characteristic changes. The physiography ranges from the highly disected Tonto section of the Colorado Plateaus Province to the hot Sonoran Desert or Mexican Highland sections of the Basin and Range Province. The Tonto section has a history of structural movements and volcanic activity upon pre-existing geologic features. Active geologic erosion and an accumulation of sediments to form the present rims, forested mountains, grass, or woodland covered plateaus, distant drainage patterns, chasms, and valleys with a buildup of fans, flood plains, and river terraces. The Sonoran Desert Section has a southern desert vegetative cover. It is composed of desert hills, broad desert lowlands of pediments, flood plains, and fans disected by arroyos along with isolated mountain ranges. The Mexican Highland section is also a thermic temperature zone with narrow alluvial valleys, desert benchlands, foothills, and isolated mountain ranges. There are also badlands where erosion has exposed the rough, unfertile, old valley fill.

The forest soil potential has been divided into a Rockland Unit and five different soil Management Zones. Within these zones the land forms, geology, and soil association can be identified and the potentials given. This includes a Rockland Unit and the Intermediate, Woodland, Grassland, Chaparral and Desert zones. The Travel and Water influence zones, Wildernesses, etc., occur within the six groups and have soils similar to the groups in which they occur.

Rockland Unit. Includes the steep precipitous cliffs and canyon walls such as the Mogollon Rim escarpment, sheer canyons into Tonto Creek, etc. This unit is scattered throughout the forest and vegetation ranges from pine to chaparral. The different forms of geologic erosion and mass-wasting shape the land feastres and builds the rugged beauty of this area. The different kinds of geologic rocks are the igneous-granites, basalts, etc., or the sedimentary-sandstones, limestones, quartzites, etc. Much of this unit is rockland. The soils are shallow over bedrock and stony on extremely steep slopes. Soil capability is low and land sensitivity is high. The elevation ranges from 3400 to 7800 feet.

Intermediate Soil Management Zone includes the pine covered mountains, valleys, and plateaus in a cool, moist climate at the higher elevations. The elevation ranges from 5000 to 7800 feet. The largest areas bounds the north and east side of the Forest above Payson and Young. Other

areas are the tops of the Sierra Ancha Mountains and isolated mountain ranges. The soils are well developed and most have clay subsoils. Moisture storage capacity and fertility levels are high. Soil capability is high to moderate and land sensitivity is low to moderate. The major soils are the Colcord and Pyeatt soils forming on old alluvium; the Bearhead, Reynolds, Workman, and Little Ranch soils developing on igneous rock; and the Cherry Creek, Amos and Diamond Rim soils developing on sedimentary formations. Erosion is excessive on the Amos, Cherry Creek, and Diamond Rim soils in some places where the slopes are steep.

The Woodland Soil Management Zone supports mainly pinyon-juniper, oak, or Arizona cypress trees and occurs below the pine and is closely associated with the chaparral and grassland zones. These smooth and uneven mountain sides and plateaus are at an elevation of 3500 to 6900 feet. Soil development is moderate to weak. The moisture storage and fertility level is moderate to low. Soil capability is moderate to low and land sensitivity is moderate to high. The woodland trees are growing on the shallow, rocky, Trezise, Jayarr, Barkerville, Luzena, Dye and Moano type soils. The trees have also moved into the deeper better developed soils such as the Jack, Thunderbird, Showlow, Queare, and Rockinstraw type soils. Soil erosion is excessive and deep gullies are cutting in the deeper less stony soils.

Grassland Soil Management Zone is the gently, sloping bottom lands, smooth mountain lands, and high elevation plateaus. The elevation ranges from 3700 to 6900 feet. These grasslands are located across the center of the Forest below the pine and higher than the hot, southern desert shrubs. The soils are well developed, having a clay subsoil in moist places and a high moisture storage capacity and high fertility level. Soil capability is high and land sensitivity is low to moderate. The Strawberry, Lynx, Cordes, and Showlow soils are grassland soils developing in deep alluvium. Other major grassland soils are the Thunderbird, Queare, and Rockinstraw developing on igneaous parent rock. Jacks and Round Top are residual grassland soils forming on sedimentary rock. Under a woodland have an undersirable churning characteristic when the fine clays losses the top soil and protective vegetative cover.

The Chaparral Soil Management Zone is the steep uneven or smooth mountain side at an elevation of 3500 to 6500 feet. This zone extends across the center of the Forest below the pine and above the southern desert shrubs. Soil development is moderate to weak. The moisture storage and fertility level is moderate to low. Soil capability is

moderate to low and land sensitivity is moderate to high. The dense stands of chaparral grows on shallow rocky soils over a highly weathered and fractured bedrock. Roots penetrate 20 or more feet into the granite, diabase, rhyolite, sandstone, schist, or quartzite bedrock to draw on the deep ground waters. Soils forming on these parent rock respectfully are the Barkerville, Trezise, Jayarr, Luzena, Dye, and Moano, and Cinnabar soils. Overland flows of water and erosion excessive where bare soil is exposed between the brush clumps.

The Desert Soil Management Zone covers the largest section of the forest and extends across the southern half. The southern desert grass, browse, shrubs, and trees occur up to an elevation of 3600 feet. Much of the area is bench lands, pediments, bajabas, and low valley flood plains. Desert hills and desert foothills, to isolated mountain ranges also occur. Soil development is strong to weak with moderate to low fertility levels. The strong soil development, where clay subsoils have formed, appears to have been a soil development that took place when the climate in past geologic history was more moist. Soil capability is low to moderate, because of climatic limitations of arid moisture regime and extremely hot temperatures. These are light colored soils, low in organic matter. The major soils series developing on alluvium are: Laveen, Arizo, Hartz, Anthony, Gila, Tres Hermanos, Mohave, Continental, Eba, White House, and Sonoita. Rough valley fill cutbanks, and hillsides are exposed by erosive forces. These badlands are a continual source of silt to flowing water. Shallow rocky soils developing on igneous parent rock are the Graham, House Mountain, Cellar, Lehmans soils.

Demand. Soil and geologic materials on the land surfaces is the basic resource producing both the commodity products and the amenity values. Soil produces the timber in the Intermediate Zone. Water flows, whether clear and sparkling or polluted with silt is a direct result of soil condition and protective vegetative cover. Recreation needs require the direct use of soil for campsites and a lush tree growth for shape and greenery. Forage production and revegetation potential is strongly influenced by soil characteristics. The soil layers capable of producing vigorous plant growth are limited in most soils. Soil lost to erosion may never be restored.

FOREST MULTIPLE USE GUIDE

WILDERNESS

Potential. The Mazatzal, Sierra Ancha and Superstition Wildernesses are entirely within the boundaries of the Tonto while the Pine Mountain Wilderness is shared with the Prescott National Forest. Thus, a total of 361,370 acres, or approximately 12 percent of the Tonto, are designated as Wilderness. All of the areas except Pine Mountain were included in the National Wilderness Preservation System through passage of the Wilderness Act in 1964. Pine Mountain was designated as Wilderness in 1973.

The Mazatzal Wilderness was established as a Primitive Area in 1938 and redesignated as Wilderness in 1940. It contains 205,346 acres and lays within the Cave Creek, Mesa, Payson and Tonto Basin Ranger Districts. The eastern boundary is guarded by the Mazatzal Range from North Peak to Mazatzal Peak to Mt. Peeley. The area between Mazatzal Peak and North Peak comprise an area that is perhaps as near pristine in wilderness character as exists.

The topography is exceedingly precipitous and broken by narrow vertically walled canyons. Elevations range from 2400 feet in Canyon Creek near Bartlett Reservoir to 7888 feet at Mazatzal Peak. Vegetation is representative of southwestern mountain ranges which rise from the desert floor. Semi-desert vegetation at the lower elevations succumbs to perennial grassland, chaparral, pinon-juniper woodland, and finally the ponderosa pine - Douglas fir association at the highest elevations. Stream courses are characterized by riparian vegetation. Water is not abundant, however, and fishing is limited to the East Verde River where several species of native and introduced fishes are found. The diverse vegatation of the Wilderness provides habitat for many species of wildlife.

The Sierra Ancha Wilderness was established as a Primitive Area in 1933 and redesignated as a Wild Area in 1951. It remained as such until the passage of the Wilderness Act in 1964. It contains 20,850 acres and lies entirely within the Pleasant Valley Ranger District. The Wilderness is eleven miles in length and ranges from one-half to five miles in width.

Although this is a relatively small area, the extremely rough topography has resisted man's influence, and it remains much the same as it has always been. The Wilderness embraces the top and main ridge of the Sierra Ancha Mountains, then plunges eastward into Cherry Creek. Preciptious box canyons, high cliffs, and abrupt changes in elevation make the area exceptionally rugged. In many cases there is a difference of 2500 feet in elevation within a mile's distance.

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Elevations vary from 7600 feet on Center Mountain to 3200 feet in the southeastern corner near Cherry Creek. This elevational variation is accompanied by a variety of vegetative types. The semi-desert type is found in the lower reaches, while progressing upward the chaparral, pinon-juniper, and ponderosa pine types are encountered. Patches of mixed conifer are scattered throughout the higher and wetter reaches while riparian vegetation is found along the stream courses.

The diversity of vegetation has resulted in the occurance of six of Arizona's "big ten" game animals within a few miles distance. These are mule deer, whitetail deer, black bear, mountain lion, turkey and javelina.

Asbestos and uranium, the two major minerals which have been mined adjacent to the Wilderness, occur in the Apache geological group. This group is found throughout the Wilderness and as a result, claims blanket much of the area.

The Superstition Wilderness was designated a Primitive Area in 1939 and a Wilderness in 1940. It contains 124,140 acres and lies within the Mesa, Globe and Tonto Basin Ranger Districts.

The Superstitions are truly a land of superstitions. The desert Indians for centuries held in awe the massive mountains, believing the Great Spirit became angry with the earth people and cause a great flood which forced the people to climb the sides of the mountain to the crest. The Great Spirit had used all the water in the world filling the Great Salt River Valley and could not reach the people. In his wrath he turned them to stone, and these figures remain as the fringe of basaltic columns around the crest of the mountain.

Stories of gold mines such as the lost Adams diggings, the Lost Dutchman, La Mina de los Sombreros, and the Seven Peralta Mines are but a few. Over the years the legends have drawn many people. Fortunes have been spent in the looking, but nothing has been taken from the rugged unforgiving Superstitions.

The very nature of the rough terrain, and the desert and semi-desert vegetation differing so greatly from other Wildernesses add to its magestic, mysterious charm and value. The mountains rise abruptly from the desert floor. The western portion consists of knife-like ridges divided by deep, sheer-walled canyons. The southern and eastern portions have broader mesas and the canyons are not as steep. Elevations range from 6266 feet at Mound Mountain to 1800 feet in Boulder Canyon. Occasionally large blocks of chaparral and small areas of woodland and timber occur as the elevation increases above the desert floor.

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Many species of wildlife now inhabit the Superstion Wilderness. The desert bighorn sheep who once inhabitated the area has not been sighted since the late 1940's.

The Pine Mountain Wilderness was set aside as a Primitive Area in 1933 and designated as Wilderness in 1973. Of the total 20,062 acres, 11,034 are on the Tonto and the remainder on the Prescott. The portion on the Tonto National Forest lies within the Cave Creek Ranger District.

The Wilderness is unique in the sense that it is rugged and yet fairly easy to wander through. It also provides a challenge to the wilderness enthusiast because of its lack of water and its high temperatures during the summer months. Some of the higher peaks offer magnificient views of the Verde River, Bloody Basin, the Bradshaw and Mazatzal Mountains - all outside the Wilderness. Pine Mountain, from whence the Wilderness gets its name, is 6800 feet in elevation while the lowest elevation is 4600 feet at the south boundary. The vegetation on the Tonto portion is dominated by chaparral and semi-desert shrub vegetative types. Occassional stands of pinon-juniper are interspersed throughout with ponderosa pine occurring at the higher elevations.

In order to attain the most effective management of this Wilderness, it has been determined that administration of the area will rest with the Prescott National Forest.

In addition to the four classified Wildernesses on the Tonto, eight areas consisting of 165,170 acres have been designated as New Wilderness Study Areas. These are roadless and undeveloped areas which might qualify for Wilderness. As such, they will be protected from activities which would compromise their wilderness values until administrative study or legislative process determines their acceptability or unacceptablility as classified Wilderness.

The Alder Creek Wilderness Study Area contains approximately 30,500 acres. It lies on the north side of Upper Saguaro Lake, Canyon and Apache Lakes and extends northward to the Four Peaks. Deep narrow canyons break from the Four Peaks at 7600 feet elevation downward to the Salt River at 1600 feet. Ash deposits known as welded tuffs predominate in the southern portion while granites and schists are found in the vicinity of Four Peaks. Vegetation is typical of the chaparral and semi-desert vegetative types with thickets of Arizona Cypress found on the higher slopes of the Four Peaks.

The southern portion of the area lies within a Bureau of Reclamation First Form Withdrawal along the Salt River. A twenty acre tract of

private land is located within the northern boundaries. The sites of early day cattle camps and an Indian Massacre also existed within the area.

The Goldfield Wilderness Study Area extends from six miles north of Apache Junction to the south shore of Saguaro Lake and from Bulldog Canyon on the west to the Apache Trail on the east. It encompasses approximately 11,300 acres of the Goldfield Mountains.

The area rises abruptly from 1600 feet on the desert floor to over 3200 feet at Dome Mountain. This elevational change occurs in less than two miles. The terrain is characterized by many deep narrow canyons with steep sides and scenic bluffs. The Goldfield Mountains consist largely of ash deposits known as welded tuffs. Vegetation consists of those species associated with the desert and semi-desert types.

This area with its rough mountains, desert vegetation and vertical bluffs dropping into the lake, provides a most picturesque setting for the south shore of Saguaro Lake. Recreational use consists of a few rock hunters, javelina hunters and occassional hikers utilizing the outer fringe of the area. The rugged interior receives little use of any type. Even wildlife is limited due to the lack of water. Old records indicate that Desert Bighorn Sheep once inhabited the area.

The northern one third of the area is within a Bureau of Reclamation First Form Withdrawal.

The Hell's Gate Wilderness Study Area is approximately three miles wide, fourteen miles long and contains approximately 32,840 acres. It emcompasses portions of Tonto and Haigler Creeks. Elevations range from 3000 feet in the south to 5800 feet along the high ridges and mountains. The area is extremely rough, especially along the Tonto and Haigler Creek boxes and at the mouths of side-canyons. Sheer escarpments extend from 1000 to 1500 feet above these creek bottoms. Travel, other than along the few developed trails, is extremely difficult due to the precipitous character of the area.

The flora and fauna is typical for the woodland type in central Arizona. Scattered stands of fringe ponderosa pine occur on north slopes whil occasional grasslands appear on the ridges.

The perennial streams contain rainbow and brown trout, catfish, bony tail and suckers. The occasional visitors to the area consist mainly of hardy fisherman and hunters.

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The Lime Creek Wilderness Study Area is located approximately one and one half miles west of Horseshoe Reservoir and contains 21,790 acres. Topograph consists of steep mountainous terrain with small areas of lesser slopes in the saddles and foothill along Lime Creek. The geological formation is primarily of volcanic origin but includes areas of granite, conglomerate, limestone and other sedimentary formations. Elevations range from 5489 feet near West Cedar Mountain to 2100 feet in Lime Creek.

Although the area is fairly accessible due to the major roads adjacent to its boundary, recreational use is quite low.

Two patented mining claims totaling 29 acres are located just within the western boundary. Approximately 80 acres on the eastern boundary are included within a Salt River Project Withdrawal for Irrigation Works.

The Salome Wilderness Study Area straddles Salome Creek which is a tributary of the Salt River on the western slope of the Sierra Ancha Mountains. The area is approximately 30 miles northwest of Globe and encompasses approximately 14,900 acres. Elevation ranges from 2400 feet to 6000 feeet. The topography is extremely rugged with steep slopes breaking to the stream bottom, outcropping of bedrock and precipitous bluffs. Vegetation ranges from semi-desert to chaparral with occasional pine trees at higher elevations. Riparian vegetation predominates the stream bottom. Wildlife is abundant in the area. The stream harbors German brown and rainbow trout.

A 68 acre tract of private land is located within the area.

Recreational use of the area is limited to occasional hunters and fishermen due to the arduous travel required to penetrate the area.

The Sierra Ancha Wilderness Study Area is contiguous to the west boundary of the Sierra Ancha Wilderness and contains approximately 1500 acres. It emcompasses that portion of McFadden Horse Mountain which is not Wilderness. Elevation ranges from 7500 feet to 4800 feet. The mountain top is virtually isolated due to the precipitous cliffs which surround it. These cliffs are quite spectacular with colorful formations jutting abruptly out the pine and chaparral vegetation.

There are numerous uranium and asbestos claims adjacent to the area and some undeveloped claims within. Use of the area is relatively light.

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The Superstition Addition Wilderness Study Areas consist of seven separate units contiguous to the Superstition Wilderness totaling 20,500 acres. Vegetative types vary between the individual units. Limited areas of southern desert shrub, more extensive areas of semi-desert and chaparral are found. Occasional pockets of ponderosa pine and Arizona Cypress are found on favorable sites at the higher elevations. Likewise, the topography varies from gently rolling areas to extemely rugged canyons and bluffs.

Approximately 600 acres of the unit adjacent to the northwestern corner of the Wilderness is within a Bureau of Reclaimation First Form Withdrawal along the Salt River.

All of the units are natural extensions of the existing Wilderness which would put the boundary along topographic features rather than on section lines.

The Verde Wilderness Study Area encompasses approximately 31,840 acres and is contiguous to the west boundary of the Mazatzal Wilderness. The Verde River flows from north to south through the area. The topography varies from flat alluvial river bottoms to steep mountainous terrain on either side of the river. The gological formation is primarily of volcanic origin and includes areas of granite, conglomerate, malapais, limestone and other sedimentary formations. Paloverde, catclaw, juniper, mesquite, coffeeberry, saguaro cactus, ocotillo and prickly pear dominate the vegetation of the mesas and mountains. The Verde River and its tributaries are predominately riparian vegetation.

Fifty acres of private land are within the area in Sycamore Creek. The area extending one mile on either side of the Verde River is within a Bureau of Reclaimation First Form Withdrawal.

Demand. Visitor use, although relatively light in the Mazatzal, Pine Mountain and Sierra Ancha Wildernesses, is increasing yearly. The western one third of the Supersitition Wilderness is heavily used due to the easy access and its proximity to the metropolitan Phoenix area. There is a limit to the kind and amount of use that any of the areas can withstand without deteriorating wilderness values.

There is a great deal of interest in, and pressure for, the creation of more Wilderness by organized and special interest groups and individuals. The general public is also becoming more aware of those remnants of our nation whose wildness has not been reduced from what it was when first seen by pioneers. Many place more value on retaining such areas in an undeveloped state than on the

commodities which the land could produce if developed. The demands for retention of such undeveloped areas are in direct conflict with demands to produce commodity products for an increasing population.

The Forest inventoried nine roadless areas, eight of which have been selected as Wilderness Study Areas. The classification of these areas as Wilderness will depend upon the suitability of the areas to be determined by upcoming studies and the public demand as expressed by Congress. Until the studies are completed, the areas will be designated as special management units on the Multiple Use Map and protected from activities which would compromise their wilderness values.

The unique ecosystems within the Wildernesses are expected to grow in importance and will be studied in detail to determine what effect fire, livestock use and human use have had upon the ecology.

The suspected presence of mineral bearing formations will encourage prospecting and mining activities. The statutory rights of prospectors will continue until December 31, 1983. Activity is expected to increase until 1983 because of the deadline.

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Section 3 - Management Situations

USES

FORAGE

Potential. All of the approximately 2,960,000 acres of the Tonto provide forage for a wide varity of wildlife species. Approximately 2,140,000 acres are classified as usable and open for grazing by domestic livestock.

Rangeland areas have been fenced to create 107 separate grazing allotments. Five of these are community allotments with use by more than one permittee. The remaining 102 are used by individual permittees. Approximately 30% of the allotments have been further divided into two or more pasture management units. Twenty-five percent of the allotments are located totally or partially within a classified wilderness area.

Range productivity over the Forest varies widely due to both past use practices and the capacity of the soils to produce vegetation. Many of the more productive range sites have been severely damaged by extreme grazing use in the past. This is particularly true of the alluvial plains and foothills adjacent to major perennial streams. On many of these sites, soils have deteriorated with a corresponding loss of nearly all perennial grass. Woody shrubs have moved in and occupied these sites further complicating the situation. On years of abundant winter moisture production of annual grasses and forbs is abundant.

Timbered areas, sometimes with a understory of alligator juniper or brush, have a limited capacity for forage production.

Areas of dense shrub cover, often on steep slopes, produce large amounts of forage. Management of livestock on these areas is difficult, and on many soil types livestock use can damage grazing values.

There is a potential through better range manangement and revegetation practices to increase production from suitable range areas. Any increase will be largely off set by discontinuing use by domestic livestock on unsuitable range areas. Wildlife will continue to use the forage from the unsuitable areas.

Demand. At present the 107 grazing allotments provide forage for approximately 44,000 cattle and 11,000 sheep each year. The owners of these livestock are nearly all dependent upon a year long supply of forage from the Forest. There is a constant demand to increase the number of livestock permitted to use Tonto ranges as well as a demand for increased wildlife numbers by various groups.

There is a increasing demand to use the forage resource for other than utilization by grazing animals. Natural beauty, wilderness, and out door recreation are placing demands on the forage resource in addition to the more traditional needs for soil protection and production of quality water. The invasion of many woody shrubs into productive range sites continues to decrease the supply of forage.

With a increasing population all demands cannot be fully met or satisfied. Intensive management of lands having a productive potential can only partially satisfy the present and future demands for forage.

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LAND USES

Potential. The Tonto National Forest is located adjacent to the population center of Arizona. The communities of Payson, Punkin Center, Pine, Strawberry and Young are completely surrounded by the National Forest. National Forest lands occupies key geographical positions in these areas which often make them highly desirable for many forms of land use. Transportation systems, communications and public utility systems to these communities must pass through the National Forest. The Tonto also lies between the large coal deposits with their associated power plants in the Four Corners area and the State's major population center.

Many of the high mountain tops are desirable as radio-electronic sites because of their strategic locations. Such sites now exist on Mount Ord, Humbolt Mountain, Signal Peak, Carol Springs Mountain, Pinal Peak, Madera Peak and Wildcat Hill.

The variety and complexity of uses that exist on the Tonto seems endless. A partial listing includes motels, restaurants, recreation concessions, outfitter and guide operations, recreation residences, marinas, roads, radar site, water transmission lines, and power transmission line. The Tonto is also valued for educational, research, military and archeological purposes.

An area of special significance is the Tonto Forest Seismological Laboratory. The headquarters is located on the Payson District. The headquarters data center is connected by cable to numerous seismometers located throughout the Payson District and two adjacent Districts. It is an essential unit in the Nation's underground nuclear explosion detection system and is operated by the Air Force.

Demand. Large numbers of special use applications are received each year and consist of seemingly endless varieties of occupancy purposes, both for personal and public use. These requests are due in part to the relatively small amounts of private land available for such uses within the Forest boundary, the large population adjacent to the Forest, and the varied resources that are available. Although the demand is steadily increasing, desirable and available sites are limited. Thus, preference must be given to the most worthy uses which will serve the greatest number of the public.

Electronic sites continue to be in demand. Communication needs tend to concentrate facilities on a few of the better sites such as Mount Ord

and Signal Peak. Because of the increasing demand and the scarcity of sites, careful planning is necessary to establish priorities for this type of use.

Because of the Tonto's location between Phoenix and the Four Corners, power transmission lines will necessarily cross the Forest. Greater demands for this type of use can be expected because of the expanding population of the Phoenix area. Such utility lines must be located to minimize the impact on the National Forest environment.

Utility lines, transmission lines, transportation networks and industrial sites are social and economic necessities. Requests to utilize National Forest system land for such development will be given careful consideration. However, a clearly defined need must be established before such uses are permitted. Each application for occupancy of the Tonto National Forest must be carefully considered to determine if the use is needed, the applicant is qualified, and the use can be accommodated in the future management of system lands.

Heavy recreation use on National Forest system land has led to increased demand for public services. Such demand will continue and more than likely increases in the future.

FOREST MULTIPLE USE GUIDE

OUTDOOR RECREATION

Potential. The Tonto National Forest, embraces 2,960,000 acres of rugged county ranging from the saguaro cactus-studded desert to the cool pine-clad mountains beneath the Mogollon Rim. This variety of vegetation and range in altitude offers recreational opportunities to everyone throughout the year. In the winter, man-made lakes and the desert environment beckon, while in the summer it's the cool shade of tall pines and the meandering trout streams under the Mogollon Rim.

The spectrum of opportunities offered by the Tonto range from dispersed recreation such as fishing, hiking, hunting, horseback riding, bird watching, rock hounding and enjoying the many scenic attractions, to more developed activities such as picnicking, camping, swimming, water skiing and boating.

Interstate Highway 60-70 provides east-west access and crosses the southern portion of the Forest. State Highways 87 and 60 divide the Forest from north to south and provides a much needed route for the Valley of the Sun inhabitants to gain climatic relief in the pine covered mountains. Various other minor road provide further access throughout the Forest. One of the most scenic drives offered by the Tonto is over the historic Apache Trail which winds through scenic desert and mountain country. It passes by the Superstition Mountains and Canyon, Apache and Roosevelt Lakes. This route is especially popular with the winter visitors in the Phoenix area.

Many visitors passing through the Tonto enroute to the Coconino and Sitgreaves National Forests to the north judge other Forests by what they observe while on the Tonto. The San Carlos and Fort Apache Indian Reservations along with the Apache National Forest are also prime targets for recreational visits to the east. The Tonto National Monument is a National Park facility which draws visitors within the confines of the Tonto National Forest. The Tonto Creek Fish Hatchery and Canyon Creek Fish Hatchery are facilites operated by the State Game and Fish Department which attract visitors. Trout fishing in the high streams and warm water fishing in Salt River and Verde River lakes is also an attraction to the desert dwellers.

The water oriented recreation along the two major rivers and their Chain of Lakes is unique. Their setting in the midst of varied desert vegetation adjacent to water located in deep, rock sided, broken, multi-colored canyons provides a spectacular outdoor environment.

FOREST MULTIPLE USE GUIDE

Existing summer home lots are in heavy demand although policy dictates that no more will be allowed on National Forest lands in most of our areas. Additional land use occupancy will be approved only where clearly justified. Commercial public service facilities are serving public need on the Salt River Lakes. Any such additional facilities will be properly located and developed so as to reduce the impact on the enviroment.

Demand. The Phoenix metropolitan area with a population of over a million people and an annual tourist influx of 5 million visitors places a tremendous yearlong impact upon the administrative capabilities and recreation resources of the Forest. The mild climate in the fall-winter-spring season makes the semi-desert popular for hiking, horseback riding, camping, picnicking, fishing and hunting. In the summer the "high country" receives increased use because of the need for climatic relief. This is in the form of camping and picnicking. Use on the Salt and Verde Rivers and the Chain of Lakes changes to water oriented activities such as boating, swimming, water skiing, fishing, "tubing" (river floating on tubes) and scuba diving. Current state registrations (Sept. 1973) indicate there are 61,500 pleasure boats in the State with the majority registered in Maricopa County. This reflects the demand because of the close proximity of the reservoirs to the population center in the County.

The growth rate of the Phoenix metropolitan area has been well above the national 10 - year average. The recreation visitor-day use of the Forest in 1972 was over 2.7 million. The extremely heavy demand and use of the Forest for outdoor recreation has created some untenable situations including vandalism, pollution and deterioration of facilities.

Improved recreation facilities are insufficient to handle all of the people that would like to use them. People are forced to use undeveloped areas. This creates additional sanitation and cleanup problems. Visitors also want to leave their camping trailers for long periods to avoid pulling them to and from their homes. This places and additional enforcement problem on the Forest as a result of unauthorized occupancy. Occupancy trespass by transient families is also a problem in undeveloped areas during the winter months.

Recreation use of the wildlife resource is both consumptive and non-consumptive. Hunting and fishing are the most common forms of consumptive wildlife use. The non-consumptive use of wildlife occurs in a variety of ways. Interest in this usage is being fostered by the increasing environmental awareness on the part of the public. Bird watching, nature study, photography and wildlife viewing are growing at a rapid rated.

All-terrain vehicle and motorcycle riding as a recreational pursuit is increasing. This is becoming a major problem on the Tonto because the relatively flat terrain near the major population center of the

State is attractive to this type of use. However, the environment of this same area is very fragile and is easily damaged. Areas of high sensitivity to this type of use must be closed or the use closely regulated. Such use should be provide for in areas where environment will not be damaged.

Recreation demands on the Tonto National Forest have, and will continue to increase beyond available means to satisfy those demands. A joint effort with Federal, State, County, Indian and the private sector must be instigated in order to meet the total needs of the public which cannot be met by a single agency. Forest Service plans must be coordinated with those of other groups to determine the proper National Forest contribution toward the overall recreation need.

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TIMBER

Potential. Under the principle of multiple use, the objective of management of the commercial forest land is to grow and harvest sawtimber, pulpwood and miscellaneous wood products on a sustained yield basis with a minimal effect on the Forest environment.

Existing restraints on the land are the basis for the annual allowable harvest provided for in Timber Management Plan for 1972-1981. This plan provides for an allowable harvest of 4500 MBF per year including 200 MBF of salvage as saw logs, 8,500 cords of pulpwood and an unestimated volume of miscellaneous forest products.

Over 95% of the commercial Forest land is growing Ponderosa pine. The silvicultural system to be used is a shelter wood harvest. Management's reaction is to increase the growth rate on small saw timber and stretch out the harvest of large old growth timber. Eventually after about 5 decades, a system of even-aged management will be reached.

There is a deficiency in intermediate sizes and age classes and a surplus in the smaller faster growing stock. Pole stands need to be thinned through periodic pulpwood harvests. This will increase the growth rate for the remaining pole size trees.

About 40,000 acres of commercial timber lands are in need of pre-commercial thinning. A schedule has been developed to accomplish this over the next 10 year period. When pre-commercial thinning in the smaller sizes, age classes, pulp wood and pole size stands is accomplished the future yield of sawtimber should be assured.

An estimated 4,000 acres in site classes 1 and 2 need reforestation because of past wildfires. A schedule has been developed to reforest these areas over the next 10 years.

Juniper invasion in the pine stands is a problem effecting potential yield. Each time a stand is disturbed juniper invades the stand. Alligator juniper is a sprouting species and a prolific reseeder. Consequently it is extremely difficult to control. Older juniper trees provide desirable fuelwood.

Demand. The demand for sawtimber, pulpwood and miscellaneous wood products has been strong. The demand exceeds the annual allowable cut. However the allowable cut has not been exceeded in the sawtimber harvest. Presently three sawmills and a paper mill are utilizing the output.

The demand for fuel wood, wildlings, posts and poles is increasing. Demand for readily accessible Christmas trees has exhausted the readily available supply on the Tonto and Christmas trees will not be sold until such time as new areas become accessible or stands are regenerated to the point where Christmas trees again become available.

FOREST MULTIPLE USE GUIDE

TRANSPORTATION

Potential. No Interstate Highway passes through the Tonto National Forest. Nor does any railroad enter deeply into the Forest. Railroads serve the Globe, Miami, Superior and the Phoenix metropolitan areas. State Highways 87 and 260 carry some through traffic. But most of the use of these highways is by people traveling between two points within the Forest or between one of the metropolitan areas and the Tonto National Forest or beyond to the Mogollon Rim Country. State Highways 188 and 288 serve as a link between the northern portion of Gila County and Globe, the County seat. State Highway 88 provides access to Canyon, Apache, and Roosevelt lakes. This highway, the Apache Trail, is one of the older more historic highways in the state.

The Phoenix metropolitan area is served by various modes of public transportation. Sky Harbor Airport, near the center of the metropolitan area has scheduled flights to the major U.S. cities and most of the larger communities in Arizona and New Mexico. Phoenix is on the AMTRACK System with the Southern Union Railroad. Globe, Superior and the cities in the Phoenix Metropolitan area are served by interstate bus lines. Payson is served by a local stage that has two scheduled runs between Payson and Mesa, Tempe and Phoenix and one run each day between Payson and Showlow. Pleasant Valley has one mail run to Globe each day. The mail truck will carry passengers for a price.

The Tonto National Forest has 1575 miles on its present Forest Development Road System. Of this 844 miles are primitive, 588 miles are graded and drained, 67 miles has soil or aggregate surfacing and 66 miles are paved. Most of the 588 miles of graded and drained was not designed nor built to an adequate standard. It is not only difficult to traverse but almost impossible to maintain in wet weather. The road bed and slopes are subject to high amounts of erosion. Many of these substandard roads especially in the Payson vicinity, serve a fairly dense rural population of summer home and year round residences.

The Tonto National Forest has 815 miles of trails on its transportation system. A few of these trails were constructed to a high standard but most "just happened." Some of these have been maintained and/or reconstructed to a good condition.

Payson and Roosevelt (Grapevine) have the only good airfields within the Forest. The Payson airfield needs reconstruction which is planned. Pleasant Valley has an airfield which is dangerous. Plans are being made to build a new one in the vicinity.

Demands. Components of a transportation system are becoming thought of as more than a method of obtaining fast, efficient transport from one point to another. On most roads this is still a very important consideration, but on others the aesthetic and historical aspects of the road are the main attraction to those who drive it. An example is the Apache Trail. Primitive roads become challenges for motorcycles and 4-wheeled drive vehicle enthusiasts. Roads become not only avenues to develop Forest resources but instruments to help control the human impacts on the resources.

The principle generator - attractors for traffic within the Tonto National Forest are the metropolitan areas of Phoenix, Globe, Superior, Cave Creek and Payson, the recreational areas along the Salt River lakes, Tonto Creek, Christoper Creek, East Verde River and the lakes above the Mogollon Rim. These recreational areas also attract visitors from all over Arizona and some from out of State.

Peak demands on the Forest road system are generated by the weekend recreationist, as they use the lakes in the fall and winter and escape from the valleys heat in the summertime. This demand will increase with the increase in population of the Phoenix metropolitan area.

Trails are used by hikers, horseback riders, and off-road vehicles, both as individuals and as organizations. In recent years pressures have increased for nation and statewide trail systems.

The Phoenix, Metropolitan area has many riding clubs, backpacking clubs, boy and girl clubs, motorcycle clubs, over snow vehicle clubs, etc. These clubs depend on these trails not only to lead to their destination but more often, as the primary attraction.

The Highline-trail just under the Mogollon Rim and the trails in the Wildernesses have the heaviest use. There is a need for trails system to be developed and publicized outside the wilderness. These trails are easier to administer and would serve to spread uses that are now using the wilderness trails. There is also a need for more trails within the Wildernesses to help distribute uses and provide visitor separation.

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ACTIVITIES

ECONOMICS

Potential. The commodity products and amenity values of the Tonto National Forest are important to the economy of the Salt River Valley as well as to the cities of Payson and Globe. For many years, up to the turn of the century, the economy centered around the cattle raising, mining and the lumber business. During the late 1800's the importance of water production became apparent and to protect the watershed values the Tonto National Forest was established. Although watershed, timber grazing and mining values are still important, in recent years their relative economic importance has changed. In the wake of an "environmental awakening" on the part of the public, new values tied to amenity values have surfaced.

The values given for commodity products are "ability to pay" values. That is they are the amount the user could pay over the short run and still remain in business. This maybe higher than the price currently being paid by some producers but it is the maximum a producer would be willing to pay for additional quanities of the product.

Water is the most important single product which comes from the Tonto National Forest. Because no direct revenues for it are received it is often thought of as a by-product or free commodity. In as much as the ability to increase supply is limited it should be viewed in terms of demand, trade off and benefits.

It is clear that life know is known it in Arizona would be considerably different without the waters on the Tonto.

The value of outdoor recreation on the Tonto is difficult to assess as the value per visitor day varies from $0.75 to $12 or more. However some indication of its importance to the State of Arizona can be obtained from the fact that tourism is a $20 million per year business in the Salt River Valley.

The intangibles of open space and natural beauty are extremely valuable to the ecomony. The communities within the Tonto continue to grow. The burgeoning subdivisions scattered throughout the Forest owe most of their economic value to these items along with climatic relief.

Other major contributions of the Tonto to the area's economy include wildlife use (both consumptive and non-consumptive), land uses and scientific research; plus the Forest's annual expenditures and the payments of 25% of Forest revenues to counties.

FOREST MULTIPLE USE GUIDE

Demand. Management of the Tonto National Forest resources becomes more complex and difficult as the demand for various uses of these resources continues to increase. Although the actual quantity of land, and thus ultimate production potential, is essentially fixed, production can be increased by application of capital, labor, and management of various forms and amounts. Doing so will usually result in trade-offs, i.e., production of one resource is expanded at the expense of another.

It is extremely difficult to fully and accurately determine the public's needs, either at a local, regional or national level. However an attempt must be made in order to emphasize resource uses among competing demands.

Similarly in assessing alternative programs or projects the question must be asked "will the product or products gained be worth what has to be given up (tangible and intangible)?"

The economic analysis must be combined with the analysis of environmental effects in presenting information to the public and in reaching such decisions.

In assessing the economic value of potential programs or projects it is important that the value of the increased amount of resource be used rather than the average value for the existing product output. For livestock forage and timber these values are essentially the same. Increases in outputs of these resources will bring essentially the current prices and will have the same ability to pay values. However this does not hold true for water.

Incremental values for outdoor recreation and wildlife are less well known. However, within the limits of their reasonable potential -- i.e., without degrading the environment or impairing land productivity--they should be close to their present values.

In assessing overall economic benefits it must be kept in mind the amenity values of open space, natural beauty and desirable climate are of prime importance because of the State of Arizona's recent very high growth rates, and will quite likely continue to be of great importance.

It is important that in evaluating management alternatives that a systematic approach be used to view amenity values as well as commodity to insure their proper consideration in analyzing alternatives.

FOREST MULTIPLE USE GUIDE

FIRE MANAGEMENT

Potential. The Tonto is noted for its variety of fuel, rugged topography, and lengthy extreme burning periods. This, coupled with heavy lightning fire occurence and man caused fire occurence that is increasing day by day sets the stage for a very complex fire management situation.

Being adjacent to the largest and fastest growing urban area in the State of Arizona the Tonto is subject to ever increasing use demands. Visitor use has increased from 1,500,000 days in 1970 to 2,700,000 days in 1972. The potential for man-caused fires is increasing and may continue to increase as more use is made of the Forest. Increased prevention efforts may reverse this trend.

Real property and natural resource values have increased tremendously in the State of Arizona. The objectives of Fire Management are to decrease the number of acres destroyed by wildfire and provide protection commensurate with these values while holding expenditures to an acceptable level.

Continuous accumulation of fuels available to burn is one of the Forests major Fire Management problems. Slash from logging, thinning and pulping adds 15,000 acres of ground fuel each year in the Pine type alone. Growth, reproduction and natural accumulation of Forest litter makes approximately 850,000 acres of chaparral more explosive each year. Dense grass and weed crops make the desert extremely susceptible to fire. In the woodland type, vegetative manipulation projects and natural growth and reproduction continue to add to available fuel.

Historically fuelbeds of hazardous proportions have been developed and tolerated as a calculated risk from a fire standpoint. The hot, dry climate delays natural decomposition of accumulated fuel and reduces fuel moisture each spring to the point of almost total availability for consumption by fire.

Demand. A total fuels management program is imperative to reduce past fuel build up and to keep abreast of fuel production occasioned by intensive Forest management practices.

Air quality constraints will demand more intensive protection of the resources from wildfires and will place additional constraints on the disposal of fuels by burning. On the other hand, natural fire advocates may favor fire management decisions to provide less protection from wildfires and more debris disposal by broadcast burning controlled but near natural conditions.

FOREST MULTIPLE USE GUIDE

INFORMATION AND EDUCATION

Potential. The Supervisor's Office of the Tonto National Forest is located in the Phoenix metropolitan area which contains over 50% of the State's total population.

Within the Forest boundary are several rural communities whose economic well being and development is closely allied to the management of the Forest's resources.

Due to Tonto's varied resources and its proximity to a large, well informed and rapidly expanding population with diverse interests, it plays an important role in the social and economic activities of the entire State. Many individuals, groups, institutions and agencies are concerned and have an interest in the management of the Forest resources. Programs are often questioned by the public and news media.

All but one member of Arizona's Congressional delegation maintain local offices in Phoenix. The Governor's office as well as those of other State agencies are located in Phoenix.

The ability to disseminate information from the Phoenix area is enhanced by more than thirty radio stations, five television stations and two newspapers with statewide coverage. The Supervisor's Office also serves as an information center for personal inquiries by phone, mail and personal visits.

From the viewpoint of much of the public in the Phoenix metropolitan area the Tonto represents the Forest Service in Arizona. Much of the information gathered and dispensed through the Supervisor's Office relates to the other National Forests in the State.

Demand. There is an exceptionally strong demand on the I&E resources of the Forest. As population in and around the Forest increases, the need to better inform the public of management situations and decisions also increases. The demands to inform and educate school children in the hundred of schools in the Phoenix metropolitan area far outstrip the Forest's capabilities. To compensate for this more use needs to be made of "mass media" techniques using both radio and television. Radio, television and newpapers are also the most effective ways of reaching very significant members of the adult population.

There is an impressive number of individuals, groups and organizations directly involved and interested in the environment and the management of National Forest System lands. An existing film library provides for approximatley 1000 showings each year to them and other audiences.

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INSECT AND DISEASE MANAGEMENT

Potential. Pine Bark beetles, Ips and Dendroctonos are endemic to timber stands on the Tonto. Damage usually occurs where trees have been weakened or slash has been left undisposed of near live trees. Trees may become weakened in areas heavily used by people through compaction of the soil or by physical damage to the tree. Lightning and wildfire may also weaken trees. Activities such as phone, powerline and road construction should include proper slash disposal methods. Over mature trees, often found in campgrounds and summer home areas present a special hazard because they provide the foundation of outbreaks of pine and Douglas Fir bark beetles.

Dwarf mistletoe occurs extensively on the Tonto. Control measures are being carried out silviculturally on all timber sales and thinning projects. These measures rarely involve the removal of all trees. Uninfested residual trees and lightly infested seed trees are left in regeneration areas. Control by pruning infected branches is the method most commonly used in recreation areas. This method prevents the mistletoe spread and may increase the vigor and prolong the life of the pruned tree.

Demand. A good surveillance and detection program is required with quick suppression action taken when necessary especially in the higher use areas. Insect and Disease Control information dissemination to private landowners within the National Forest is essential.

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LANDOWNERSHIP ADJUSTMENT

Potential. On June 30, 1972, there were 2,961,908 acres of land within the boundary of the Tonto National Forest. There were 91,629 acres of non-Federal land within the boundary, leaving a net of 2,870,279 acres of National Forest land. In order to ensure proper management, National Forest land boundaries must be identified and marked on the ground. Consolidation of landownership patterns facilitates the efficient protection and management of National Forest system lands.

The non-Federal land consists of property in three major classes:

1. Homestead and mineral patents along streams which have high value for public recreation.

2. Scattered in-holdings of high multiple resource value.

3. Other private land undesirable for National Forest ownership.

Those private lands undesirable for National Forest ownership generally provide the base for the towns of Pine, Strawberry, Payson, Young, Punkin Center and Superior located within the boundary of the Tonto National Forest.

Demand. The unprecedented growth of communities within the Forest boundaries as well as those located adjacent to the Forest such as Cave Creek, Carefree, Mesa, Apache Junction and Globe, have made extra demands on Forest lands for community expansion. The disposal of base-for-exchange land which is intermingled with, or adjacent to, developing private land would reduce the time-consuming problems of land line location, right-of-way acquisition, special-use administration and trespass prevention. Consolidation of the private lands would also provide for more efficient operation of local governmental services and public utility systems. Likewise, the acquisition of private in-holdings would provide for additional renewable resource production on a sustained yield basis. It would also provide for more efficient and effective management of the surrounding National Forest land.

Land-line location is a critical factor in the proper administration of the National Forest lands. The Tonto has approximately 1300 miles of interior and exterior boundary lines to locate and maintain.

Approximately 155 miles (12 percent) of these lines have been located and posted to standard. This includes recovering 1647, or 48 percent, of the total 3402 property corners. Consolidation of private holdings can appreciably reduce this mammoth task.

The land exchange program is somewhat complicated by traditional attitudes and local government entities. For the most part, such bodies are against the exchange procedures whereby they stand to lose already limited tax base. Consequently, each exchange must be thoroughly analyzed and evaluated. To date, however, most of the property acquired by the liquidation of Tonto lands has been on other Forests in the State and consequently have been increasing the tax base.

FOREST MULTIPE USE GUIDE

CRITICAL AREAS

ARCHEOLOGICAL SITES

These are areas of land that contain cultural remains or other evidence of use by aboriginal people. These lands are a fragile, nonrenewable resource which require special management to preserve the evidence for study and interpretation to assist man's quest for knowledge of ancestral cultures and behavorial patterns. Techniques for extracting increased amounts of information from the archaeological record are perfected yearly, with the result that a site excavated today will yield infinately more data than if it had been excavated ten years ago, and even more information will be obtainable ten years hence.

There are presently no formally classified or designated archeological areas on the Tonto National Forest. The Bloody Basin Archaeological District and the Brazaletes Pueblo Site have been nominated to the National Register of Historic Places. A number of other archaeological districts and sites were inventoried but their significance could not be determined because of the lack of research. It is quite possible that as more research is completed, additional areas will qualify for formal designation.

EXPERIMENTAL FOREST

The Sierra Ancha Experimental Forest is composed of 13,255 acres in the Sierra Ancha Mountains. Elevations range from 2,500 to 7,000. This experimental Forest was set aside for watershed research which has been carried on since its establishment in 1932.

The area contains parts of the desert, chaparral and intermediate zones, and topography for the most part is very precipitious. Much of the higher country has a high scenic value and the recreation potential is considerable.

Large game, namely deer and bear are present in the area and since the area is available for hunting extensive use of the area is made for hunting and camping.

Timber has been harvested in various degrees of intensity including clear cutting to determine the effect of these types of treatment on water production. All cutting practices are initiated by the Rocky Mountain Range and Experiment Station and as new situations develop or are finalized new studies will be conducted. This will create an impact on Tonto National Forest personnel for assistance.

Some studies have been conducted in prescribed burning in chaparral and if the need for more research develops another impact could be created.

HIGH-SLOPE DYNAMIC AREAS

These are the lands where mass geologic erosion is very active. This includes most of the Rockland Group and small areas of extremely steep slopes. Most of the area is precipitous cliffs, canyon walls, and bedrock outcrops. The soils on these extremely steep colluvial slopes, landslide areas, rock falls, mud flows, and talus slopes are weakly developed. These lands are fragile and any disturbance accelerates the mass movement of soil materials.

HISTORICAL SITES

Historic sites are districts, areas, buildings, structures and objects that are significant in architecture, archeology, culture or American History. They must possess integrity of location, design, setting, materials, workmanship, feeling and association. To qualify for the National Register of Historic Places such sites or structures must: be associated with events that have made a significant contribution to the broad patterns of our history; or be associated with the lives of persons significant in our past; or embody the distinctive characteristics of a type, period, or method of construction; or have yielded, or may be likely to yield, information important in pre-history or history.

Roosevelt Dam is the only formally designated historic site on Tonto National Forest. There are, however, a number of historical sites on the Forest of varying significance. Brazaletes Pueblo and the Bloody Basin Archaeological District have been nominated to the National Register. Other sites on the Forest may qualify for formal classification once their significance is determined.

FOREST MULTIPLE USE GUIDE

KEY WILDLIFE AREAS

The entire Forest is composed of a mosaic of key wildlife areas. An area may be very important for breeding and wintering populations or year round residents. An area may be important due to its high productive potential or because it is an area where one or more species listed in the "Threatened Wildlife of the United States" Red Book are found. Something lives on every acre of land on the Forest. How important the area is to the species or how important the particular species is to an ecosystem has not been as important as the value placed on the species by man. Man's values are derived by what he thinks a particular species does for him.

The riparian bottoms are on of the key wildlife areas found on the Forest. These are important because they support a great number of breeding birds, while comprising only a small fraction of the total acreage of the Forest. They provide breeding areas for several peripheral bird species.

The desert shrub type is another key wildlife area. This is due to the variety of vegetation and wildlife species. Arizona is virtually the only place that this vegetative type is found.

The few mountain meadows that exist on the Forest are also key areas. They are important to elk, deer, turkey, pocket gophers, several species of raptorial birds and many song bird.

Any area where there are vegetative types coming together forming a diversified edge effect are key areas. Examples include pine stringers and riparian areas.

Major species of concern such as game and threatened species should receive continued surveilance with the co-operation of the Arizona Game and Fish Department and the Bureau of Sport Fisheries and Wildlife.

POTENTIAL RESEARCH NATURAL AREAS

These are areas of land and water that have special or unique characteristics of scientific or educational interest that must be protected against activities which directly or indirectly modify the Natural Ecological processess.

The Bush Highway Research Natural Area was found suitable and has been so designated by the Chief.

Other potential sites on the Forest have been investigated. No other sites that meet present criteria for formal designation were found.

FOREST MULTIPLE USE GUIDE

THREATENED SPECIES HABITAT

Any species formerly found on the Forest in viable numbers and whose habitat or numbers are reduced so as the species itself is threatened should be listed as threatened whether it is on the official list or not. Examples of this would include the river otter, desert big horn sheep, pronghorn antelope, Mearn's quail, squaw fish, Southern bald eagle and osprey.

The inventory of endangered species and their requirements should be continued. Finding out what we have, how many, where and what their requirements are should be one of the Forests top wildlife priorities. When these areas are located they should be protected in accordance with instructions in the Forest Service Manual.

RIPARIAN SITES

Numerous riparian sites exist on the Tonto. These are located along all streams on the Forest and also many of the intermittent streams. These sites are particularly important since the vegetation is in contrast to the surrounding vegetative types. In effect they are islands, usually containing water, within the various vegetative types of the Forest. Tree species such as Cottonwood, Sycamore, Mesquite, Alder, Willows, Salt cedar, live oaks and hackberry usually dominate these sites.

These sites are attractive to people, livestock and wildlife. For the most part the more accessable riparian sites receive heavy use by grazing animals particularly domestic livestock. Water, shade and a change of forage from the surrounding vegetation tend to cause livestock to make excessive us of these sites.

The riparian sites provide extremely valuable habitat for a wide variety of wildlife species. It is one of the most valuable wildlife habitat on the Forest.

People find most riparian sites extremely attractive for numerous outdoor activities. Picnicing and camping are probably the most popular activities although hiking, bird watching and wildlife observation are becoming increasingly popular. Because of their contrast these sites are aesthetically pleasing.

FOREST MULTIPLE USE GUIDE

SENSITIVE AREAS

The sensitive lands range from soils with a high gullying potential to the hot, arid lands at elevations below 3600 feet, or the areas of more than 60 percent slopes. The Rockland Groups consists of weakly developed soil on extremely steep slopes. Mass geologic erosion is active. Soil disturbances accelerate the erosion rates.

The deep, well developed Jacks, Thunderbird, Showlow, Queare, and Rockinstraw soils under a dense pinyon-juniper cover erodes excessively.

The Springerville soils, and in places the eroded Queare, Rockinstraw, or White House, have heavy clay soils exposed on the surface. These soils are subject to an undesirable churning characteristic when the protective vegetative cover is removed.

The shallow, rocky, Barkerville, Trezise, Jayarr, Luzena, Dye, Moano, and Cinnabar soils occur on steep slopes. The droughty nature of the surface layers of soil favors the growth of the deep-rooted chaparral plant species over grass. Overland flows of water and sheet erosion is active on the bare soil between chaparral plants.

The Desert Zone are the lands below 3600 feet. The soil is dry more than half of the growing season. The mean annual soil temperature is above 60° F. This is a severe environment and plant regeneration can be interrupted very easily.

All riparian and aquatic sites should be considered sensitive. Vegetation of riparian sites is valuable to fisheries on the Forest. Trees along the various streams on the Forest maintain cooler water temperatures, stablize soils, and help provide a food supply for stream aquatic life.

Riparian sites on the Forest should be maintained and enhanced. These should be designated as special management units with special management direction.

Indiscriminate wood cutting, excessive livestock use and excavation of the stream bed for construction materials are activities that most often have a detrimental effect on the condition of these sites. Poor watershed conditions on areas surrounding these sites can lead to excessive errosion and loss of vegetation from riparian sites.

FOREST MULTIPLE USE GUIDE

UNIQUE GEOLOGICAL AREAS

Geological features on the Tonto National Forest, that are unique, within the common formations of the Colorado Plateau and the Basin and Range Province are: (1) The Mogollon Rim, (2) the Sierra Ancha, Mazatzal, and Superstition Mountain ranges, (3) the pediments and terraces of Tonto Basin, (4) the mineral deposits in the Globe area and (5) the wild and scenic river systems.

The Mogollon Rim is a prominent precipitous cliff developed on the rising Colorado Plateau. This is rugged beauty is recognized by all who visit the Forest. The Rim is a receding escarpment due to excessive geologic erosion along a fault line scarpe in a sedimentary formation.

The Sierra Ancha and Mazatzal Mountains are the results of mountain and trough faulting. Old alluvial deposits have moved up to become mountain tops and side slopes in many places. The Superstition Mountains are a legendary range within the Basin and Range Province. They have a heavy people use for camping, hiking, hunting, and fishing. Portions of these mountains have been set aside as Wilderness Areas.

The Benchlands of Tonto Basin are a geologic study area of the terrace and pediments for the Arizona State University. This is a representative study area for the Southwest on age and formation of terraces and pediments in an arid climate.

The Globe-Miami area is a rich mineralized geologic formation. This mineral belt receives very intensive mining use. Mining operations such as open pit mining, stockpiling of tailings, exploratory drilling, and access roads leave permanent scars on the landscape. Management problems are treatments to minimize the adverse affect of these land abuses.

National wild and scenic river systems have been proposed on the East Verde River, the Verde River, Salome Creek, Salt River, and Tonto Creek. Some of these live streams are within Wildernesses. Other sections of the streams, outside the Wilderness, are free of impoundments and are inaccessible except by trails. These primitive shorelines represent vestiges of early America and are rare throughout the United States.

FOREST MULTIPLE USE GUIDE

Section 4 - Basic Assumptions

This section documents the basic assumptions in formulating management direction. The following basic assumptions are presumed to be true unless proven otherwise. They are not listed in order of priority, but an attempt was made to group them by subject matter.

1. Air pollution resulting from activities on the Tonto National Forest with the possible exception of wildfire, can be eliminated or minimized to meet acceptable standards.

2. Pollutants coming from the Tonto National Forest can have adverse effects in areas far removed from the pollution source.

3. There are acceptable levels of pollution tolerance and these must be defined.

4. Proposals to change, alter, or discontinue activities on National Forest System land will bring forth concerns, pressures, and support or opposition from the public.

5. Special interest groups will increase in number and exert more obvious pressure and attempt to influence management decisions.

6. It is going to continue to be difficult to accurately assess public opinion.

7. Land management decisions will require in-depth surveys to determine population attitudes and needs at all levels of society.

8. The projected population of the United States and Arizona will continue to increase through the year 2000. It is forecast that the population of metropolitan areas adjacent to the Tonto will bulge to over 2 million by the mid 1980's.

9. Demand for recreation will continue to increase on the Tonto National Forest.

10. Increasing public demands will be made to protect and improve Forest amenity values.

11. Man-made features when constructed in harmony with the natural environment can enhance the appreciation and enjoyment of natural beauty.

12. Urban pressures will create the need for open spaces adjacent to the Phoenix metropolitan areas especially along the Salt and Verde Rivers.

13. Amenity values of vegetative resources will become more and more important in management of the Tonto National Forest.

14. State and Federal water quality standards can be expected to become more strigent in the future.

15. Conflicts in water rights and uses will result in increased disputes and court adjudications.

16. Nonconsumptive use of wildlife such as bird watching, animal photography, etc., will continue to increase.

17. Hunting demand for game animals on the Tonto will increase.

18. Protection and maintenance of wildlife habitat on the Tonto will continue to grow in importance, especially threatened species.

19. Fishing pressure on Forest streams and lakes will increase.

20. Demands for reintroduction of once native wildlife species will increase.

21. More opposition to control wildlife populations is expected to increase.

22. Demand to excavate archeological sites for research and educational purposes will increase. Vandalism and 'pot hunting' will continue to decimate this archeological resource.

23. Some proposed Forest management practices, permitted uses, and other activities may threaten archeological sites.

24. There will be an increasing demand for mineral resources within the Tonto and prospecting activity will continue on large areas on the Tonto National Forest.

25. Soils will become increasingly important in the management of Forest resources.

26. The wilderness resource can be damaged and/or destroyed by excessive use.

27. Prospecting within wildernesses will continue until the activity is terminated by law (1983).

28. Pressures to decrease or eliminate the grazing of domestic livestock in wilderness areas will occur.

29. Ranching, as the sole family business, may give way to acquisition of livestock operations as an economic diversification or avocation for individuals.

30. Demand for forage production on the Tonto will continue to exceed the supply.

31. The permit system of forage allocation for domestic livestock may have to be modified.

32. There will be a continued and increasing demand for a broad variety of special uses of Tonto National Forest lands.

33. More stringent controls will be required to regulate recreation use.

34. The demand for wood products will continue to exceed supply on the Tonto National Forest.

35. The amenity value of timber stands on the Tonto could effect the annual allowable cut.

36. There will be increasing demands for better transportation systems within the Tonto National Forest. Conflicts will continue to surface as to standards, location and design of Forest and State transportation systems.

37. The risk of man caused fires will increase.

38. Prescribed burining will be utilized to a greater extent.

39. There will be a greater need for the use of mass media techniques to keep the public better informed of our management methods.

40. It can be anticipated that land exchanges involving the Tonto National Forest will generate controversy.